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MASSACHUSETTS

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AN ADDRESS, DELIVERED BEFORE THE MASSACHUSETTS AGRICULTURAL SOCIETY AT THE BRIGHTON CATTLE SHOW, OCTOBER 9th, 1822. BY THE HON. TIMOTHY PICKERING.

GENTLEMEN OF THE MASSACHUSETTS SOCIETY,
FOR THE PROMOTION OF AGRICULTURE,

It appears to be expected, that at each of your anniversary meetings, a discourse on Agriculture should be delivered. The Trustees of the Society have requested me to address you at this time. But though willing to be laid under contribution to the great object of your institution, it has occasioned a degree of solicitude to present something meriting your attention. From the multitude of books written on the subject of agriculture—embracing in that word whatever should employ the thoughts and the labours of the skilful husbandman—the field would appear almost boundless: yet to select topics particularly interesting to the farmers of Massachusetts, and here to discuss them so as to communicate useful and acceptable information, was not unattended with difficulty. My address must necessarily be miscellaneous.

Philosophers and practical husbandmen have for ages employed their thoughts and their pens on the various operations in agriculture; yet diversities of opinion still exist; and the reasons of many of those operations have been little more than conjectural. What constitutes the food of plants, has long been a subject of diligent inquiry. It was natural to suppose that if this food could be discovered, it could

more easily be provided, or at least be more efficaciously administered. The palpable differences which distinguish the immense variety of plants, in their forms, textures, colours and tastes, naturally suggested the idea, that each variety required its specific nourishment. Yet it being a matter of common observation, that the same soil would nourish and bring to maturity multitudes of different plants, of very opposite qualities—some yielding wholesome food, and others a deadly poison—at the same time all growing together, and robbing one another; a nobler and more simple idea presented itself—that the food of all plants was the same; but that each species was endued with the power of converting that food to its own peculiar substance: as among animals, the same grain produced all the varieties of flesh which go to sustain the life of man. In the vegetable kingdom, this supposed power of conversion seemed strikingly apparent in the effects of grafting of fruits. The juices imbibed by the roots from the earth, and immediately changed to the proper sap of the native stock, ascend and spread through all the limbs; and if each of these be grafted with a different fruit, the varieties will be as numerous as the branches.

By the modern discoveries in chemistry, these mysterious effects seem to be accounted for. For it appears that all kinds of plants are composed of a small number of elements, whose different arrangements and combinations produce all the varieties in question. Seldom more than seven or eight of those elements belong to plants, and three constitute the greatest part of their organized matter. But each of these is a compound, consisting of the same materials, only in different proportions. The three principal ingredients in the food of plants, and which by them elaborated constitute the food of man and other animals, are named by chemists, carbon, oxygene, and hydrogene; in other words, charcoal, vital air and inflammable air; and these exist in the air we breathe, as well as in manures consisting of vegetable and animal matters.

It may seem incredible that the thin air, an invisible matter, should be changed, in the process of vegetation, into solid substances, as wood and stone: but nothing has been more clearly ascertained, than that in 100 parts of pure limestone, 45 parts are fixed air, or carbonic acid; which in the act of burning the stone into lime, is expelled: for if at that time the stone be weighed, it will be found to have lost so much of its original weight. It is also well known that this same lime, which slaked with water, or exposed to the air, falls down into a powder, will immediately afterwards begin to imbibe fixed air from the atmosphere, and eventually, though slowly, recover its original weight. It is this same carbonic acid, or fixed air, which, at the bottom of wells, every year proves fatal to a number of lives. For this air, when separate, being heavier than the air of the atmosphere, sinks and remains at the bottom of wells, and is a deadly poison. It is the oxygene in the atmosphere, called also vital air, because essential to animal life, which, mingled with the fixed air, renders the latter harmless.

I have introduced these few remarks on the food of plants, to present an idea—a very faint one indeed—of that very interesting subject; which, as already observed, has so long employed the thoughts of philosophers and agricultural writers; but the satisfactory discovery of which seems to have been reserved for the present age. This view serves to account for the vast variety of plants which will grow on the same spot of earth; the ingredients of their food being substantially the same, but varied in the proportions peculiar to each; and which each has the faculty of appropriating to its own use; rejecting the rest, or casting it off as excrementitious.

But although the same articles of food will afford nourishment to a variety of plants, yet these are so formed as to require a variety of soils, adapted to their several constitutions; some preferring a stiff, others a loose or light soil—some a moist, and others a dry one. Few, however, will

refuse a well compounded loam. Soils (like plants) however diversified in appearance, consist of different proportions of the same elements. Four earths generally abound in soils; and these, by chemists, are called aluminous, siliceous, calcareous, and magnesian; and of these the three first are the principal; and, in familiar language, well known to every farmer, as clay, sand, and lime. Magnesia is often found in limestones; and the combination is said to give the strongest lime for the farmer's use; so as in smaller quantities to serve his purpose, as well as mild lime applied in much larger quantities.

The first object which claims the farmer's attention, is the nature or constitution of the soil. The next embraces the means of enriching it and preserving its fertility. That intimate mixture of clay and sand which is called loam, is the most desirable soil, as being already prepared for every operation in agriculture. A stiff clay demands opening by the addition of sand and other materials; and a sandy soil requires the addition of clay. But calcareous earth is considered as essential to give to soils the capacity of attaining the highest degree of fertility. Few soils, indeed, are wholly destitute of calcareous matter, though it may be invisible to the eye: but very few possess so large a portion of it as would be salutary. There can be little danger, therefore, of applying it to excess in Massachusetts, where so little in any form has been found. Limestone is the great source of calcareous matter. But this is of various qualities. Very little of it is purely calcareous. Some limestones in Great Britain have been found to contain eleven parts in twelve of sand. Of such lime, if sixty bushels were spread over an acre of ground, five bushels only of calcareous matter would be applied. To know then the constitution of the lime he uses, is important to the farmer; and not less so to the mason in preparing his mortar, which will require the addition of more or less of sand, according to the composition of the lime. All marles contain calcareous matter, and are of

greater or less value, according to the proportion which this bears to the clay, sand, or other substances mingled with it. All shell fish will supply this material. In some parts of the United States, remote from limestone, oyster shells are burnt to obtain lime for building; and in all seaport towns where many oysters are used for food, their shells will be found in quantities deserving the neighbouring farmer's attention; and if raised in piles, mingled with wood, may be burnt to lime.

Of the vast improvements of the lands in Scotland, within the last forty or fifty years, lime has been the basis; and the use of it the first step towards rendering the application of manures, strictly so called, highly productive. There they will lay from fifty to two hundred or more bushels on an acre. In Pennsylvania, where lime has been long and extensively used, twenty to fifty bushels to the acre has been found sufficient, and safer than any larger quantity, at least in the first application. A remarkable instance of the beneficial use of lime, though only at the rate of about twenty bushels to the acre, well merits a recital. The experiment was made on a field of ten acres, for which the farmer had provided two hundred bushels; but it being his first essay in using lime, it so happened that the whole quantity was disposed of when he had gone over nine acres. Indian corn was planted; and the crop was very great. The next year, the field was fallowed, and at seed time sown, a part with wheat and a part with rye; and good crops were produced. "In the Spring (says the farmer) I sowed it with clover and timothy (Herdsgrass) and put two bushels of plaister on an acre; and had as great a crop of clover as could grow; it lay three weeks before the time of mowing." He adds—"The lime and plaister did all this; for no land could be poorer before. Where I laid no lime, I got no clover, although I put on the plaister."* The kind of soil in

* Memoirs of the Philadelphia Society of Agriculture, Vol. I. page 193.

which lime operated so powerfully, is not mentioned: but probably it was clayey; a very common soil in the country where this land lay. Another like instance occurred in the Delaware State, on a clay farm, on which plaister produced no effect until the land was limed.* While lime operates very beneficially on strong clays, it is said to be still more useful on lighter soils. To ascertain its effects on any lands, will require but little time and a small expense. A single cask of lime will be sufficient for a number of comparative experiments. If a few adjoining rods of land be set apart for the purpose, and the lime, by slaking, brought to a fine powder, it may be evenly spread on the several small strips, in different proportions, at the rate of twenty and any greater number of bushels to the acre. Then, by raking or harrowing, mix the lime with the surface soil, and plant each strip equally and uniformly with Indian corn. One equal strip, tilled and planted exactly as the others, but left unlimed, will enable the experimenter to see what advantage may arise from liming. In the next year the effects of lime, in its respective proportions, may be further tested, by sowing the same strips with equal quantities of one sort of grain and of grass seeds.

In like manner, small experiments may be made to try the effects of clay on light sandy or gravelly loams, and of sand on stiff clays. The clay should be carried on and spread, and lie on the surface during the winter, to break and moulder by the alternate frosts and thaws, that it may be more effectually mixed with the soil.

As to the manner of applying lime, I am satisfied the best is that recommended and practised where lime has been most extensively used: that is, to slake it with water, and as soon as it falls to a fine powder and is cool, to spread it evenly over the land, and with the harrow mix it with the soil; its greatest utility depending on its intimate incorpora-

* Memoirs of the Philadelphia Society of Agriculture, Vol. II. p. 187.

tion. In liming extensively, the lime is often, perhaps most commonly, carried on and dropped in small heaps, to be slaked by the moisture in the air: but it should be carefully attended to, that it may be spread as soon as it is slaked; or there will otherwise be danger of its setting in lumps, which may never again be duly pulverized.

If the application of lime be, as is represented, so important to the great and permanent fertility of the soil (and of this I entertain no doubt,) while the knowledge of the fact is all that is essential for the practical farmer to know; something more is desirable to satisfy inquisitive minds; and if the reason for using lime, or its mode of operating, could be shown, it would give confidence to the husbandman, while it gratified the philosophical inquirer.

A gentleman who is reputed one of the greatest chemists of the age (Sir Humphrey Davy) informsus that "when lime, whether freshly burnt or slacked, is mixed with any moist fibrous matter, there is a strong action between the lime and the vegetable matter, and they form a kind of compost together, of which a part is soluble in water:"—that "by this kind of operation, lime renders matter which was before comparatively inert, nutritive; and as charcoal and oxygene (vital air) abound in all vegetable matters, it (the quick lime) becomes at the same time converted into carbonate of lime;" that is, it is restored, by again combining with carbonic acid or fixed air, to the state in which it existed before it was burnt, except its being reduced to powder. Again he says—"Mild lime, powdered limestone, marles or chalks (for chalk is a limestone) have no action of this kind upon vegetable matter; by their action they prevent the too rapid decomposition of substances already dissolved; but they have no tendency to form soluble matters." He then remarks, that "chalk, marle, or carbonate of lime, will only improve the *texture* of the soil; or its relation to absorption; acting merely as one of its earthy ingredients. Quick lime when it becomes mild, operates in the same

manner as chalk; but in the act of becoming mild, it prepares soluble out of insoluble matter." Again he says—"All soils are improved by mild lime, and sands more than clays."

While quick lime, according to this celebrated chemist, is so usefully applied to land abounding in fibrous matter, to effect its speedy dissolution, he says its application should be avoided, where a soil contains much soluble vegetable manure; as it either tends to decompose the soluble matters by uniting to their carbon and oxygene, so as to become mild lime, or it combines with the soluble matters, and forms compounds having less attraction for water than the pure vegetable substance.

But an ingenious writer, under the signature of Agricola, in Nova-Scotia, says, that notwithstanding all these precautionary fears, the offspring of chemical creation, the British farmer is mostly in the habit of applying quick lime to all sorts of soils. And he assigns an adequate reason, that caustic lime cannot remain any length of time in the ground, without passing into a carbonate and becoming mild. This writer offers different reasons for the beneficial operation of lime: that it is capable of absorbing not only that quantity of carbonic acid which it possessed in its natural state (being 45 parts in 100) but an additional quantity; and can form what chemists call an hypercarbonate. This, he says, is highly soluble in water: which accounts for the admission of lime into the structure of plants; and that this excess of carbonic acid adheres very loosely to its base (the mild lime) and is liberated without any extraordinary degree of heat. The carbonic acid, a most important article of vegetable food, is copiously evolved in the putrefactive process of manures; the calcareous earth fixes and prevents its escape —forms with it a hypercarbonate, and readily imparts it, in union with water, towards the nourishment of the crops. It is supposed to do more; it unites with the carbonic acid floating in the air; and when there is a scarcity of aliment

in the soil, it seizes and secures this food in the atmosphere, and afterwards disperses it, according to the calls and necessities of vegetation. Hence the necessity of keeping lime on the surface. It is then ready to intercept, and combine, with the carbonic acid which is generated by the fermentation of the putrescent matter lying at lower depths, and to attract the same gas (the carbonic acid) from the surrounding air.

I confess myself much better satisfied with the observations of Agricola, in accounting for the operation of lime, than with the solution offered by Sir Humphrey Davy. If the statement of the former be correct, we can see a reason for the long continuance of the beneficial effects of lime on land: for although it is not itself food for plants, it is constantly employed in collecting and imparting to them that food, from the sources which have been mentioned. Does not the reasoning of Agricola also indicate the cause why lime benefits sands more than clays? The latter are opened and rendered lighter by its application: and to destroy their too great tenacity, seems to be a main advantage gained by liming clay soils; whereas sandy soils are already sufficiently porous.

An old English practice of burning clay for a manure, has lately been revived in England, and with some appearance of novelty. The facts stated in regard to its operation, preclude all doubt of its efficacy. On stiff clays, it has, in the practice of some farmers, superseded the use of lime: because, although much greater quantities of it are required, yet being on the spot, in the very field where it is wanted, it is much cheaper than lime, for which the farmers are often obliged to send upwards of twenty miles.—It is said that clay thus burnt,—in which the process is so managed as to reduce the clay to the condition of ashes,—will not again, when wetted with rains, recover its original texture of a close compact substance too tenacious of water, and when dry, too hard for the roots of plants freely to penetrate. I

have called the burning of clay for manure an old English practice: for I find an account of it in the second of Dr. Eliot's Essays on Field Husbandry, written and printed in Connecticut upwards of seventy years ago. The Doctor gives a recipe, copied from an English book, for the process of burning it; which is with a *smothered fire*, a point of indispensible necessity, according to the present practice in England.

Many ways of improving lands, both in the manner of cultivating them, and in the kinds of useful plants to be introduced, have been often recommended; and certainly a spirit of improvement has been extensively excited: yet much remains to be done, to raise our crops to an equality with those in some European countries, whose lands and climates are no better than our own. But have we the means of accomplishing it? I answer, generally, that we have. Our animals for labour are equally efficient. Our instruments of husbandry are as good, or capable of being easily made so. Our husbandmen are as intelligent, and unquestionably less prejudiced, and less averse to adopt improved modes in farming. In England, a bigotted perseverance in ancient practices, however absurd, has in times past been astonishing. Her own writers inform us, for instance, that in one country all their common ploughing have long beenperformed with one pair of horses driven by the plough man; while in an adjoining district four or five horses, in a single line have been put to the plough, with the addition of a driver, and yet ploughing no more land, nor with a deeper furrow, than was elsewhere effected with one pair of horses.

But although I suppose no prejudices equally strong exist among us, still we are, I think, too prone to adhere to old usages, where no good reasons can be given for them. New practices in husbandry are often—perhaps chiefly—attempted by persons not bred to that occupation; and these, for want of practical skill, may often fail in the execution; and when successful, the success is ascribed to a

liberal expenditure of money, beyond the ability of the mere farmer. But what risk will attend experiments made by farmers themselves, to test the value of these novelties? Each one for himself can try them on as small pieces of ground as shall suit his convenience, and at a very small expense of time and money. The introduction of improvements would be facilitated, if the money expended, and especially the quantity of labour bestowed upon them, were always accurately stated, and their authenticity vouched by the names of the improvers. And if the experimenters, in these cases, who hire all the labour, and this often performed in their absence, are merely *not losers*,—practical farmers, always present, and working too with their own hands, would assuredly render such new practices *profitable*.

But I apprehend the knowledge of modern improvements in husbandry is far less extended than may commonly be supposed. That celebrated Travelling Agriculturist, the late Arthur Young, a man of science and literature as well as a practical farmer,—after visiting different districts in England, for the purpose of observing, and for the information of his countrymen describing their various modes of husbandry, commenced, about the close of the American War, his annals of Agriculture. He afterwards travelled over France and parts of Spain and Italy with the same views. Thus fraught with agricultural knowledge, he continued his labours in that work; comprehending, in addition to his own observations, useful communications from practical farmers, bearing their signatures: for it was a general rule with him not to admit any unless thus vouched: Yet, if my recollection be correct, that practical work was so little attended to by English farmers, that he once stated its sales as not exceeding 500 copies. Since then, indeed, improvements have more readily been adopted; and agriculture has advanced with an accelerated pace; and in Scotland with great rapidity. *Reading*, to obtain agricultural information, has been extended, and become fashionable; and book-farming know-

ledge is no longer despised. This knowledge is now of greatly increased value, because experiments, with a view to improvements, are not, as formerly, made at random, but on principles founded in the nature of things, and which rest on modern discoveries.

As we have no farmers who cannot read,—in order to give to all opportunities of reading, I take leave to suggest for consideration, the expediency of forming, in each township in the State, a farming society, of which the members should meet monthly, to converse on farming affairs—to make mutual communications of their practices in husbandry—to commit to writing every practice not in common use, which may be beneficially extended—and to read and examine modern publications on their vocation; particularly those of the State Society, which the Trustees would gratuitously furnish. To these, such township-societies would find it agreeable and useful to add the best periodical publications which issue from the presses of our own country, either through the agency of Agricultural Societies, or of well informed individuals. With these and a few other books on the subject, each township society would become possessed, at a very small expense, of a pleasing and instructive agricultural library.

After considering the constitution of the soil he has to cultivate, the next object of the farmer will embrace the means of enriching it, and of preserving its fertility. To enrich it, manure will present itself as of the first importance; and of manures, the dung of his live stock will obviously occur as the most essential ingredient. If the manure from the droppings of his stock could easily be doubled, how great would be the farmer's acquisition? That this is practicable I cannot permit myself to doubt. I am rather inclined to think it capable of a manifold increase. At another public meeting of farmers, I had occasion to suggest some means of preserving and greatly increasing this important article; particularly during that portion of the year

when cattle are at pasture, but penned at night in the barn yard. Nothing is more common than to see these yards, after being cleared of manure for the Spring crops, left naked until autumn, without litter or mud, or earth of any kind, to absorb the urine of the cattle and to mingle with their dung; but all is left open to our burning summer suns, by which the greater part, three fourths, perhaps seven eights, of the essence of both are exhaled and given to the winds. To prevent this serious loss, I suggested the expediency of giving to the barn yard, as soon as it was cleared out, a covering of any kind of litter, and a coat of earth, mud from low grounds, loam where attainable, or any kind of earth to which a farmer can have easy access; and that as often as once in two weeks, a new coat of earth should be introduced. Weeds from road sides and waste places would make valuable additions to the summer manure. By such means manure may be increased in a four, perhaps an eightfold degree.

But if in addition to this accumulated summer manure, the farmer, without any of the dung or litter of his cattle, could double the quantity usually made during the winter, would he not consider himself enriched? That this is practicable will appear from a statement I shall now recite; it being the result of careful experiments made in Scotland during a period of ten years. The fact is stated in one of a series of papers written with great ability by Mr. John Young, under the signature of Agricola (already referred to) and published at Halifax. The urine of cattle produced this mighty effect. I cannot so well occupy your time as by giving the statement in his own words, as abridged by him from the Farmers Magazine, published in Scotland.

"I should be afraid (says Mr. Young) to hazard my character with the public, by stating in round and unqualified language, the value of this rich juice which is literally wasted and thrown away: and therefore I shall proceed with caution, and give a detail of facts, conclusive in their bearings,

and substantiated by the best authority. They are contained in a letter* from Charles Alexander, near Peebles, in Scotland; and are addressed to Sir John Sinclair in 1812, for publication. This intelligent farmer had long been impressed with the great importance of the urine of cattle as a manure; and he sets about to discover, by a long and well conducted series of experiments, the best method of collecting and applying it. He began by digging a pit contiguous to the feeding stall, but distinct altogether from that which was appropriated for the reception of the dung. The dimensions of this pit, according to his own account, were 36 feet square, and four feet deep, surrounded on all sides by a wall; and the solid contents were 192 yards. Having selected the nearest spot where he could find loamy earth, and this he always took from the surface of some field under cultivation, he proceeded to fill it; and found that with three men and two horses, he could easily accomplish 28 cubic yards per day: and the whole expense of transporting the earth did not exceed £4. 16. 0† When the work was complete, he levelled the surface of the heap, in a line with the mouth of the sewer which conducted the urine from the interiour of the building, on purpose that it might be distributed with regularity, and might saturate the whole from top to bottom. The quantity conveyed to it, he estimates at about 800 gallons; but as this calculation was founded partly on conjecture, for he measured not the liquor, it will be better and more instructive to furnish and proceed on *data* that are certain and incontrovertible. The urine was supplied by 14 cattle weighing about 34 stone each,‡ and kept there for five months on fodder and turnips. The contents of the pit produced 288 loads, allowing two cubic yards to be taken

* "Farmers Magazine, vol. 13. page 78."

† $ 21 31 Seven days work for 3 men and 2 horses; each horse, I suppose, in a single cart, a common usage in Scotland.

‡ This would be the weight of a cow.

out in three carts;* and he spread 40 of these on each acre: so that this urine in five months, and from fourteen cattle, produced compost sufficient to fertilize seven acres of land.† He states further, that he tried this experiment for ten years, and had indiscriminately used, in the same field, either the rotted cow dung, or the saturated earth; and in all the stages of the crop he had never been able to discover any perceptible difference. But what is still more wonderful, he found that his compost lasted as many years as his best putrescent manure; and he therefore boldly avers, that a load of each is of equivalent value."——"The dung pit, which contained all the excrementitious matter of the 14 cattle, as well as the litter employed in bedding them, and which was kept separate for the purpose of the experiments, furnished, during the same period, only 240 loads; and these, at the same rate, could manure only six acres."

On this statement one remark forces itself into notice. That for the want of such a reservoir for saving the urine of our cattle, more than half of our winter made manure, and this is the farmer's chief dependance, is lost.

It is not stated whether the pit filled with loam was or was not covered: but unless covered, rains would saturate the earth, and thus in a manner exclude the urine conveyed to it from the cattle stall. It should also be noted, supposing the pit to have been covered, that the frosts in Scotland would seldom so freeze the earth in the pit as to prevent the absorption of the urine. The frosts in Massachusetts would doubtless require that the pit should be sunk to some depth, and certainly be under cover. In a word, a barn-cellar would seem to be the proper receptacle for this important manure. How it should be arranged, must depend on the situation of the barn. In Pennsylvania, barns, which are commonly of stone, are often erected by the side of a hill, by

* This gives 13 cubic feet to each load.

† Seven Scotch acres are nearly equal to nine English and American acres.

which means a story is gained for their cattle stalls. By digging where there is a gentle slope, a sufficient excavation for a barn-cellar would be easily made, to drive in a cart on a level, for carrying in the earth in autumn, and for removing the manure in the spring. With the increased fertility of his soil, the farmer will be able to increase his live stock; and the live stock, in return, will be constantly adding to the productions of the soil.

In respect to Live Stock, it is gratifying to see the spirit excited within the last five or six years, to attend to their melioration, by preserving some of the most promising for breeders, instead of sending them to the shambles; and by introducing from other countries some individuals already highly improved. New-England was originally granted to merchants of Plymouth, in the county of Devon, in England. It is natural to suppose that some of the early settlers sailed from Plymouth, and brought with them the Devon breed of cattle. The uniform red colour of various shades, some deep red, and approaching to brown, now so commonly seen among us, are probably descendants from the Devon race originally imported. Their uniform red colour corresponds with a distinguishing mark of the Devon breed, now so highly improved and celebrated in England. Among our own, individuals of this stock might be selected, admitting, with equal care, of equal improvements, on the principles now so well understood by the eminent English breeders, who, Mr. Arthur Young has said, are indebted for them to the celebrated Robert Bakewell. On the same principles all our other domestic animals may be improved. And this course appears to me indispensable for the speedy attainment of extensive improvements of our stock, of neat cattle especially. More than one generation must pass away before highly improved races, from the few imported animals, can be generally obtained. In this important work every substantial farmer in the country ought to engage; and by their rival efforts in every county, the great object might be accomplished. Beauty of form is desirable,

and will merit attention: but strength for labour and ample supplies for the dairy, are more important. A disposition *to fatten at an early age*—a point of excellence zealously sought for in England, where husbandry labours are chiefly performed by horses, is not of material consequence to New-England farmers, where oxen for the draught and cows for the dairy constitute their most interesting stock. But what shall farmers, who live remote from a veal-market, do with their surplus calves, above the numbers of the best selected to keep up their stocks, and to supply those whose situation may induce them to purchase, and not to breed for themselves?—I will mention what was some years since stated to me as the practice of a respectable farmer in Connecticut. He had cows for a large dairy, and cheese-making was his object.—He allowed his supernumerary calves to suck their dams three days, (or until the milk was fit for the dairy) and then killed them; taking off their skins, and giving their flesh to his store-hogs. This was to me a singular instance of practice; but from the good sense of that farmer, I conclude he must have experienced it to be not merely a necessary but a saving practice. It may be in use among other great dairy farmers, although I do not know that it is.

The Trustees have already offered a premium to encourage the making of Fine Butter. But I am inclined to think it will be difficult, if not impracticable, to make any of the greatest excellence, during summer, without the aid of ice-houses or spring-houses. The city of Philadelphia is admitted, I believe, to be supplied with *some* butter, during the warm months, superior to what is found in other cities of the United States. Yet their pastures are not better than those in the vicinity of some other cities and towns. I ascribe this superiority exclusively to the spring-houses on many of the farms in the neighbourhood of Philadelphia. Pennsylvania is a well watered country. There it seems to have been an early practice, in taking up land for a farm, to search for a spring; and as near to it as the ground would permit, regard-

less of its situation in respect to the public road—to erect the dwelling house. Here the cattle, as well as the family, would at once find good water, without the labour of digging a well. Over these springs small houses are erected, usually of stone. The room of the spring-house may be from ten to twenty feet square, according to the quantity of milk to be provided for. Trenches are made on the four sides of the floor, and bottomed and lined with flat stones. The residue of the floor is likewise paved with stones. The water from the spring enters at the side of one trench, runs all round, and at the opposite side passes away at a hole left in the wall. The under side of this hole is at such a height above the bottom of the trenches, as to raise the water just enough to keep the milk cool in the pans which are placed in it. This water runs perpetually from its source, and as constantly passes off at the outlet. In one of the trenches are also set the cream pots, and the pots with the butter the night before it is carried to market. Perhaps in the vicinity of Boston and other towns in the State, there may be some springs which may furnish the same accommodations.

Much has been said and written concerning an evil which pervades our whole country, from one extreme of the Union to another—the general use of spirituous liquors—prevailing, in the opinion of wise and good men, to a mischievous excess. Sometimes it has been hoped that Agricultural Societies might find means to check the pernicious practice. But the class of farmers who abstain from it must be too numerous to become candidates for premiums on temperance. Besides, such prudent men need no remuneration for their abstinence. Here virtue is indeed its own reward.

It is said that in France and Spain the labourers in husbandry are remarkable for their temperance: but they drink small wines instead of ardent spirits. A French gentleman who for some years was endeavouring to establish vineyards in the Middle States, particularly in Pennsylvania, once mentioned to me how cheaply the French peasantry could be re-

galed with wine, purchasing a bottle for a few pence. At the same time, in answer to my question, he admitted that such wine was not equal to good American bottled cider. It has occurred to me that nothing might be so likely to check, and in a good degree to supersede the general and excessive use of ardent spirits, as the universal introduction of

Good Cider.

Were this beverage as well made as easily it might be, it would be alike palatable and wholesome; and in the end might banish spirituous liquors from the houses of the great body of our citizens. Good cider might be furnished at half the expense of strong malt-liquors; provided apple orchards were more extensively cultivated, and the fruits intended for cider properly selected. We have a great deal of bad cider, because sound and unsound apples are ground together, and no regard is paid to the fermentation, except to give it vent. No one can suppose the juice of rotten apples capable of becoming cider. But in whatever degree they are introduced, in the same degree the liquor must be debased. To make the finest cider, sound apples only should be used. But I must not enter into the minute particulars of the process of making and managing cider—it would not comport with the occasion, nor be practicable within the limits to which this discourse must be confined. I will barely suggest a few things which involve some principles.

In every orchard are found a great variety of apples generally used for cider. In New-England I presume these are chiefly wild, that is, ungrafted fruit. And I have heard the opinion expressed, that such wild fruit would make the best cider. This surely is an error. For although in a large orchard some good natural fruits may be found, yet many of the trees produce apples so small as to cost too much labour to collect them, and others have juices so meagre as when collected to be of little worth. A few sorts which in England have been celebrated for yielding the finest ciders, were always grafted with as much attention as apples designed for

the table are with us. But in England, the apples which a century ago furnished ciders of distinguished excellence,—to use the expressive words, in like case, of some of our own farmers—*have run out*. They can no longer be continued by grafting. This well known fact in that country, has led an eminent naturalist there to advance the novel doctrine—doubtless as true as novel—that trees, like animals, have their infancy, youth, maturity and old age. Grafts from the last, though inserted in young stocks, soon perish. Hence the farmers there have been seeking for fine cider fruits from new trees growing from the seeds; and when any of these are found to possess the desired qualities, they are propagated and extended by grafting.

In some parts of New Jersey, in which ciders of superior excellence are made, the farmers produce them wholly by grafting: nor can we expect fully to rival them, until we adopt the same practice.

Perhaps there are few extensive natural orchards in Massachusetts in which valuable cider fruits may not be found, with rich yellow flesh, capable of yielding liquors strong and of excellent flavour. From such trees, if still young, or in vigorous life, whole orchards might soon be formed. And probably different kinds might be selected which ripen their fruits at the times most proper for making them into cider. Apples until mellow do not attain their highest flavour; and till then cannot give the highest flavour to cider. Many reach that mellow-ripe state in October and November, which may be called the cider-making months in Massachusetts. It would require but little attention to select and propagate the best apples thus ripening in succession. Such ciders, made of ripe and unmixed fruits, would also be more easily managed in the most difficult and important part of the process of cider-making—its first fermentation; on the right or wrong conducting of which the character of the cider depends. In one case it will be soft and pleasant—in the other hard and austere.

The Trustees of this Society have, I believe for several years, been offering a liberal premium to encourage the

TURNING IN OF GREEN CROPS,

as a mode of manuring land: but I do not recollect that the premium has been claimed. It has been an ancient practice in other countries; and is not unknown in our own country. Dr. Eliot (whom I have already had occasion to mention) noticed it seventy years ago, in his Essays on Field Husbandry; and recommended millet as a plant well adapted to that purpose. The seed being but little bigger than cabbage seed, a small quantity will be sufficient for an acre. I have often heard of the turning in of Green Crops being occasionally practised in Pennsylvania. Many years since, an intelligent man of that State mentioned to me a farmer, who had purchased a farm in a township remarkable for the general poverty of the soil; and that he improved his own by ploughing in green crops—buckwheat, oats, rye;—turning them in repeatedly, until the land produced crops worth harvesting. Sir John Sinclair, in his Code of Agriculture, speaks of the practice of ploughing in buckwheat and other crops, when manure was deficient. But he says that in Lincolnshire buckwheat had for several years been ploughed in as a manure, and ultimately given up as doing no good. He then adds—"Unless so far as nourished by the atmosphere, the vegetables thus treated are supposed merely to restore the nourishment obtained from the soil." And this is the very principle on which the ploughing in of green crops materially depends. The plants while growing derive a portion of their food from the air; and being turned in, so far at least add manure to the soil. But this is not all the benefit: weeds spring up with the sown green crops, and are ploughed in with them; thus increasing the manure, and at the same time cleaning the ground for a harvest crop. But besides the growing plants, the soil itself, under their shade, made light by the ploughing and harrowing, is also receiving a portion of the same fertilizing airs. Lord Kames, however, in his Gentleman Farmer, says—"I approve not of ploughing down buckwheat, red clo-

ver, or any other crop, for manure. The best way of converting a crop into manure is, to pass it through the body of an animal. The dung and urine, not to mention the profit of feeding, will enrich the ground more than to plough down the crop." Notwithstanding these authorities—and the opinion of Lord Kames is entitled to very great respect—I am inclined to think that the circumstances and condition of many farms may be such as to render the practise eligible; particularly where manure is deficient;—and where is it not deficient? Is it not a received fact, when lands have been impoverished by cropping without manuring, that by letting them lie a few years *at rest*, they acquire such a degree of fertility as to bear a crop of some sort that rewards the farmer's toil? If this happen to unseeded land, thrown out as waste, how much sooner may it be recovered when sown with buckwheat, oats, rye or millet, and the crops when in full blossom ploughed in? If this product be small, let the land be again sown, and a second crop be ploughed in. And if a third sowing and ploughing in were given, what would be the whole expense? A trifle compared with a dressing with stable or barn yard manure—if it could be procured. This is to be carted to the field and spread, in order to be ploughed in: but the green crop is on the ground, and evenly spread, ready for the operation of the plough. But leaving all theoretical reasoning, I will recur to well authenticated facts.

The late distinguished agricultural writer, Arthur Young, Secretary to the English Board of Agriculture, so lately as the year 1811, delivered before that body an interesting lecture, to describe the husbandry and speak the praises of three celebrated British Farmers. One of these was Mr. Ducket, who occupied in succession, two "sand-farms;" that is, farms in whose soil sand was predominant. It was one of the practices of this very ingenious farmer, to plough in green crops to enrich his land. And to do it effectually, he contrived a plough with which, when drawn by four horses, he could open his furrows to the depth of eight or of ten inches, and in them perfectly bury his green crops. The opening of so deep a

furrow was called *Trench-ploughing;* and by the simple addition of an arm partly curved, and fixed on the right side of the coulter, at the desired height of eight or ten inches above the sole or bottom of the share, the growing crop was pressed to the ground; and the furrow-slice raised by the plough, following close behind and turned completely over, perfectly buried the crop and weeds. This coulter of Ducket's trench plough, with the curved arm attached to it, is called a *skim-coulter.* The arm must necessarily extend so far to the right as the breadth of the furrow; and just at that extreme, I conceive, the curve downward begins, so as, when the growing crop is pressed flat, the stems or straws may not spread out any farther; and being thus confined, are completely overwhelmed. Hence there would be no vegetation in the seams of the furrows. "By means of this tool (says Mr. Young) I have repeatedly seen on his farm, stubbles completely turned down, and crops of turnips, tares and other plants instantly put in; which crops I have afterwards viewed with equal pleasure and surprize; the execution was as complete as the design was sagacious: but it went further—converting the nuisance of any weeds into manure. So effective was the work of the plough, that I once saw him turn down a crop of rye six feet high, and immediately roll in turnip seed. The effect did not depend so much on an extraordinary depth of ploughing, as on the subversion of the soil; for of the rye I have just alluded to, not an atom was left visible; and yet the depth did not exceed eight inches. But if there be Couch [twitch grass] in the soil, this ploughing is ten inches deep; and the succeeding crop in any case well hand-hoed. This trench ploughing system is not practised above once in two or three years, and the successive tillage shallow, upon the surface. By such deep ploughing, seldom given, Mr. Ducket conceived that a due degree of moisture was preserved in his light land; by means of which his crops were flourishing in seasons of drought which destroyed those of his neighbours."

Here perhaps the question will occur—Were Mr. Duck-

et's improvements adopted by other farmers? Mr. Young says they were, by some of his enlightened brethren. Why they were not generally imitated, Mr. Young ascribes (I repeat his words) to "the perversity which characterizes the ignorance of English farmers." Again he says, "If our farmers would have adopted the practices really excellent, as soon as they were known, British agriculture would forty years ago have arrived at its present state; and at this time the kingdom would have been a garden."

In connexion with this account of Mr. Ducket's practice, I take leave to suggest the necessity, or at least the great utility, of an occasional fallowing; primarily, in order to destroy the weeds which infest so many fields, and essentially injure all crops of small grain, especially spring wheat, which ripening more slowly than rye and barley, is much more oppressed by the weeds. In effecting the object here suggested, and to enrich the soil while making a fallow, I would recommend the following mode of practice. As soon as it can be done in the spring, plough, sow and harrow in the seed of the crop intended to be turned in. Weeds will spring and grow with the crop. When the latter is in full blossom, turn it in. Immediately sow for a second crop. With this also will arise another crop of weeds; and both, as before, are to be turned in. Should the season permit, and the foulness of the ground require it, sow for a third crop, to be ploughed in, like the former, before winter. A field thus managed will be in good order for a crop of barley, summer wheat, rye or oats, in the ensuing spring; and of either a comparatively clean crop may be expected.

This dressing with green crops, valuable as I conceive it to be, need not be confined to sand-farms: it will be not less beneficial in all light gravelly loams, which I suppose rather to abound in Massachusetts; certainly, stiff, clayey loams are not common.

A few concise remarks on the general principle, and on some of the objects of these annual exhibitions, will conclude this address.

It is supposed, and justly, that these public shows, by exciting an emulation among farmers, will lead to important improvements in our husbandry. The general question which the case presents, is, What will be the easiest, cheapest, and most effectual means to accomplish this great object? A principal one has been to grant premiums for the greatest crops of specified plants on given quantities of land. One pleasing result has appeared—that by ample manuring and good culture, the usual crops of the same plants may be doubled and trebled. But is it necessary to continue premiums of this kind? May not now the entire management of farms rather claim attention? Instead of numerous small premiums dispersed on a variety of objects, might they not be advantageously concentrated for the purpose here intimated—the cleanest, most economical, the most productive management of farms? *For it must be such a general improvement of the entire farm that will constitute the farmer's permanent prosperity.* The decision of claims on this ground cannot be expected to be made by a committee of this Society to travel through the whole State: but will it not be practicable by county committees? Perhaps it may not be difficult for the Trustees of the State Society to prescribe some general principles and rules of proceeding, that may produce uniformity in the reports of county committees acting under their direction.

In ploughing, the just aim must be to make straight furrows, and of a uniform breadth and depth; and so to turn over the furrow-slice as completely to cover whatever plants or manure are upon it. All this cannot be effected with a *hurried* step. And what benefit can possibly result from such a step? A farmer's oxen at the plough must labour a great part of the day properly to turn over an acre. To do this without a driver, will require a skilful ploughman and well trained oxen. To encourage the forming of such ploughmen and oxen, should, I conceive, be the sole object of ploughing matches. Working-oxen at the plough, may be considered as well trained when they obey the voice of the ploughman,

keep the track in which they ought to move, and step as quick as will be compatible with the necessary continuance of their labour. And as the annual exhibitions at this place have demonstrated the practicability of performing the *general* operations of the plough with one yoke of oxen, without a driver, it may merit consideration whether premiums should not be thus limited in all future trials with the plough. Under such limitations, every farmer who is ambitious to exhibit proofs of superiority in these points, would be sensible that his oxen must attain a certain size, and be, though not fat, yet well fleshed; which would give strength to their sinews and momentum to their exertions. With such oxen all our agricultural labours would be so well performed, that there would be no room to envy the condition of farmers in any of our sister States; in some of which, their horses consume perhaps as much grain as would furnish bread to all the inhabitants of New-England.

OFFICIAL REPORTS OF THE CATTLE SHOW AT BRIGHTON, Oct. 9th and 10th, 1822.

No. I.—On all the larger horned cattle, (*except Heifers.*)

The Committee report, that the animals in this branch of live stock, were unusually numerous and good, proving, that a gradual and regular improvement is steadily, and as rapidly as could be expected, taking place. The number of entries for premiums, in this department alone, amounted to 42, and of individuals (many entries comprising more than one) to 52, while the whole number of premiums offered, and granted, are only 10, so that four-fifths of the competitors were necessarily thrown out. This is inevitable, unless our funds should be exceedingly increased, or unless we should make our premiums smaller and more numerous. This

might be liable to great objection, by extending rewards to animals of inferior merit, and thus diminishing the motives to make the breeds as perfect as possible. While the beneficial effects of the liberal premiums offered by the Society, for the importation of the most improved breeds of foreign countries, are every year evinced by the crowds which, from the beginning to the end of our shows, gather round the imported animals, and their improved progeny, we ought never to forget the sound advice of the venerable farmer who addressed the Society this year, "that the progress of improvement by foreign crosses must be very slow;" and possessing as we unquestionably do, the materials among our own stock of improving our breeds by careful selection, we should follow the example of Bakewell and the other British farmers, who in fifty years have raised the stock of Great Britain to a state of perfection little short of what it is supposed they can ever reach. And, who at the late show had the pleasure of viewing those fine animals, Denton and Cœlebs, could doubt whether they were superior to any animals of the same description now to be found in New-England? And why is this the case? Assuredly our pastures are as fine, and the race has not degenerated with us. Wherever a pride is felt in raising fine stock, our success is perfect, and the single town of Sutton might send its team of 120 oxen and challenge Devonshire or any other county of Great Britain, to trials of strength or activity.

Let us then, on this occasion, earnestly solicit our farmers to select and propagate only the best individuals of their horned cattle. If they reply, we feel no encouragement to do this, because we find the improved crosses always preferred at your shows, we reply; that though this is partially true, it is not entirely so, and what would the farmer have us do on such an occasion? If, in fact, the full-blooded or half-blooded descendant of imported stock is superior, shall we refuse to admit it *so* to be? This would be indeed sacrificing the best interests of our country in relation to this object, as

well as violating our solemn pledges, to gratify an improper national prejudice. Our true course is to strive to equal or surpass the foreign races by selections and careful management of our native stock. It was upon this principle that our manufactures have been built up on the only solid foundation. Instead of complaining that foreign goods were preferred, our citizens have exerted themselves to make our own *better* as well as *cheaper;* and let Manchester and Yorkshire beware, lest they find themselves not only shut out from *our* markets, (not by prohibitions but by skill and industry) but eventually rivalled in those of foreign countries. These preliminary remarks are not only intended to allay any feeling of discontent at our preference of the best stock, from whatever country it may have been originally derived, but to encourage our own farmers to take more efficient measures for the amelioration and improvement of our own native breeds. They cannot attend one of our shows, without perceiving the *public preference* for the new races, and this is a strong confirmation of the justice of the decisions; though we are aware that it is not the least difficult task of the Committee, to endeavour to decide without any bias from this clearly pronounced opinion.

We have said, that the imported stock and their progeny have usually been preferred by the visitors at our shows;—we would make *one exception*, and that is, with respect to milch cows. Although the milch cows of Great Britain and the Netherlands are *in general* far superior to our own,—yet during the six years in which I have had this duty to perform, I have never seen an imported cow of equal merit (taking the positive evidence of qualities, the quantity and quality of milk into view) with some of our own which have been offered. So fully am I convinced of this truth, as well as that our country possesses a very considerable number of these fine cows, that I am persuaded, that, if Great Britain or the Netherlands were to send us ten

cows each, of the best quality, New-England alone could furnish twenty, which would equal them in the quantities of milk, butter and cheese, which they would respectively produce. If this should be true, and I have no doubt of it, we at least possess means by which an improved race might be procured. This opinion is not expressed lightly. We infer its truth from an examination of the products of foreign cows, thought to be so extraordinary as to merit notice in their periodical journals; and during our short period of exhibitions, we have had several, which have equalled the best, of which any accounts have been published. But we would wish, that it should be distinctly understood, that we refer only to a small part of our milch cows, and that we fear much the greater number are lamentably poor. We are well convinced, that some dairies in our country, with two good cows, produce as much as the *average* of those which have five. If we are correct, or nearly so, in the opinion above expressed, how does it happen that our breed of cattle on the whole is so inferior? Because the owner of a good cow, instead of putting a proper value upon her, will generally send her to the nearest scrub bull, to save a little labour, and some trifling difference of expense. This we all feel and know to be true. But this negligence is giving place to more judicious measures, owing principally to the effect of the public shows. If every owner of a good, and very superior cow, would consider her in a proper light, not merely as a valuable animal during her life, but as capable of improving his whole stock—if he will spare no moderate expense in procuring calves from her, from bulls of an improved breed, we shall soon see our whole stock gradually improve. Bakewell and Princeps, among the most distinguished raisers of stock in Great Britain, lived to see their improvements eminently successful. We are fully aware, that all this exhortation and argument is of very little importance, compared with the more substantial proofs *derived from prices*. When, therefore, our farmers learn, that

a calf of six months, has been sold at the price of four ordinary cows, of five years old, who have consumed twelve tons of hay, including pasturage, and have required great labour in attending on them; when they hear that an excellent judge offered fifty dollars for a two months calf, of the cow herein after mentioned, owned by the Hon. Mr. Gray, they produce more solid conviction than any thing we could urge.

Before we announce the premiums, we would express the thanks of the Trustees to those gentlemen, who without claiming any reward, and purely with the view of giving aid to the show, exhibited fine animals at no small expense and trouble. It is probable as the Committee took no minutes of these animals, some of them may be overlooked. *One* we could not forget—the fine imported bull Dénton, belonging to Stephen Williams, Esq. of Northborough. He has improved with age, and shows that he has an owner who is sensible of his great value. Nor could any one overlook Cœlebs, owned by Major Jaques, of Charlestown. If there had been no other animals on the ground, those who are fond of viewing fine natural productions, would feel that a visit to Brighton would have been well repaid by the sight and comparison of these animals, differing considerably to be sure, but each very remarkable for beauty. There was also a fine imported cow, with her calf, lately bought by the Hon. Mr. Gray for $200. Such liberal prices will ensure a constant and gradual improvement of our stock. It is said that this cow is very remarkable for the quantity and quality of her milk—we have heard that she had given in England 36 quarts per day, but there was no person to give us any accurate account of her. Capt. Tracy, of the London Packet, added a new proof, to the many he has already given, of his zeal for the promotion of the Agriculture of his country, by exhibiting three young horned animals, just imported by him. Major Jaques also exhibited three fine cows, without asking a premium.

After so long a trial of the patience of the competitors, by these introductory remarks, many of which competitors will, however, be *disappointed quite as early* as they would wish.

The Committee awarded the premiu ·· :

For the best fat ox, 6 years old, to Oliver Starr, of Deerfield, weighing 2333 pounds, $40

For the next best do. 6 years old, to Lewis Barnard, of Worcester, weight 2256, 30

For the next best do. 5½ years old, to Amos Davis, of Groton, weight 1992, 20

For the best bull, to Major S. Jaques, of Charlestown—weight 1243—15 months old, 30

For the next best do. to Joshua Coolidge, of Watertertown, by *Cœlebs*—weight 735—7 months and four days old, 20

For the best bull calf, to Uriah Manning, of Woburn, being the progeny of *Cœlebs*, 15

For the next best bull calf, the progeny of *Denton*, to the Hon. Levi Lincoln, of Worcester, 8

For the best milch cow, to John Barr, of Salem, 30

For the next best do. to Samuel Murden, of Milton, 20

For the next best do. to the Hon. John Welles, of Dorchester, 15

As to milch cows, one of the most important, as well as most difficult articles to decide upon, the Committee proceeded, as they will probably hereafter always proceed, solely on evidence as to the *actual* product. The clearer this evidence, the more certain the success. The goodness of a milch cow depends on so many circumstances, and all of them so important, that the Committee are obliged to extend their inquiries very far. Form and beauty is of some moment, but it is also sometimes fallacious; and no one would reject a fine cow, which should give an uncommon quantity of fine milk—butter superior in quantity and quality—continue to give milk every year, till within one week of calving, merely because she had a

great head, or a large frame, or small teats, or, in short, because she had not any one of the *fine points* described in the "Complete Grazier." In this, as in every thing else, we must not always trust wholly to the *exterior*.

It has been usual to notice those animals of considerable merit, which deserved attention, but did not obtain premiums. I have never been satisfied with this course. Its tendency is in some degree to lessen the value of the rewards we bestow, if we praise too much those which were not successful; and after all we only shift the mortification, and make it fall with more severity on the greater number whose animals are *not* noticed—but as it is the usage we comply with it. There was a very fat ox presented by Mr. Savary. He was fatter than some of those which obtained the premium, but the difference of the age decided the question against him. There were fine bulls offered by Mr. Warren, Mr. Ward, Mr. Rice, Mr. Patch, of the fine native breed, so often noticed by us—and by Mrs. Amory, of the Cœlebs breed, one of which took a premium last year. There was also a superior Holland Bull, imported by Mr. Forrester, offered for exhibition only.

The best bull calf, not noticed in the premiums, was Mr. Lee's, of Brooklyn, Maj. Jaques' and Dr. Chaplin's. Many others were also very fine.

Of the cows, Capt. Inglee's, of Dorchester, was very remarkable—and also Mr. Brigham's, Job Ranger's and H. Warren's, both of New Braintree—but we have already explained the principles of our decision as to milch cows, which we hope will be satisfactory.

The Committee have endeavoured to give general satisfaction, and if they have failed of that, they will at least have the pleasure of having satisfied themselves.

JOHN LOWELL, *Chairman.*

No. II.—On the smaller animals.

The Committee of the Massachusetts Society for the Promotion of Agriculture, appointed to decide on all the smaller class of Animals including heifers,

REPORT:

That twenty-five animals of the class of "heifers, of from one to three years old," were in the pens for premium or exhibition—all of an excellent quality, and most of them of approved breeds; and generally indicating the increasing attention of the agricultural interest to this important class of stock. The general improvement in this class of animals, compared with our former Cattle Shows, was very marked and decided.

The first premium was awarded for a heifer owned by Henry Rice, Esq. of Marlborough. She was of the breed of "Denton," the celebrated imported bull owned by Stephen Williams, Esq. of Northborough. This heifer was two years old on the first of February, from a cow of the Princeton breed; her form and figure strongly indicative of her sire. The heifer sucked only twelve weeks, has had no other keeping than common pasturage and *meadow hay* in the winter. She calved in May; at six weeks her calf weighed 88 lbs. the quarter and never took all her milk until it was five weeks old. This heifer has given from twelve to fourteen quarts of milk during the season, $15

The second premium was awarded for the heifer owned by Mr. Samuel Brooks, of Brighton, who had also received no extra keep, and was a beautiful sample of the approved Holderness breed, introduced into the state by Gorham Parsons, Esq. 10

There were other distinguished animals of this class, which deserve particular notice, and were highly approved. Such were that belonging to Mr. Wheeler, of Framingham, also

of the Holderness breed; and those presented by the Hon. Mr. Lincoln, also of the Denton breed, and were animals of beauty and promise.

Five heifers belonging to the Hon. Mr. Welles, of his own improved stock, which has on former occasions had distinguished notice by committees of this society.

To these ought to be added the heifer of Mr. Coolidge, and that of Francis Amory, Esq. from Major Jaques' imported bull Cœlebs; and also those of Mr. John Breed, of Belle-isle, from Mr. Thorndike's bull "Fill Pail," all partaking of the excellent and peculiar qualities of their respective breeds.

The Committee also award for the best Boar,

The first premium to Joseph Rice, of ———, the sum of $10

The second premium for the best Boar, they award to Mr. Spark Vose, of Watertown, the sum of 5

The first premium for the best Store Pigs, they award to Mr. Luke Fiske, of Waltham, the sum of 10

The second premium for the best Store Pigs, they award to Mr. Aaron Dow, of Brookline, the sum of 5

The first premium for the best Merino Ram, they award to Gorham Parsons, Esq. 15

The Committee regret to observe that the general specimens of Merino Sheep exhibited for premium were in their opinion inferior to those of former years. They feel themselves justified only in awarding a second premium for the best Merino Ewes, to Gen. Austin, 10

The second premium for Merino Wethers they award to Francis Amory, Esq. 10

For Native Wethers there was no competition. Those presented by Mr. Silas Hall, of Phillipston, were very fine animals, and deemed worthy of the first premium, which the Committee accordingly award, of 10

[Upon condition that he give evidence according to the rules, that they were wholly bred in this State, and raised by the persons exhibiting them.]

A pair of Stags were presented by Mr. Meriam of Concord, as a specimen of a new mode of altering cattle; and which he represented as easier, equally effectual, and less dangerous than the ordinary method. Your committee were not authorized to grant any premium on this account. Nor can they recommend any to be given, without a more satisfactory evidence of the success of the operation and of all the advantages specified. Should this be the case, at any future time, it will always be in the power, as they doubt not it will be the inclination of the trustees, to grant a just reward for this, as well as for any other successful improvement in the important operations of agriculture.

Mr. Meriam also presented several spayed sows, for the society's premium for animals of that description; but they were not accompanied by any statement of the mode of operation and treatment, as required by the rules established by the Trustees, and besides, the operations were very recent, and apparently, some of them at least, done expressly for the exhibition, and for the purpose of offering for the premium. Now in a case of this nature, when a premium is proposed expressly for the purpose of testing the efficacy of an important, and in this country, in some respects, a new operation, your committee apprehend that no premium ought to be granted, unless by well attested experiments, supported by a lapse of time sufficient to leave no question of the result.

Mr. John Baker had entered also four spayed sows, belonging to Gorham Parsons, Esq. for the premium proposed for the same operation. They were in fine health and completely healed—neither disfigured or weakened by the operation. A certificate also accompanied, made by Gorham Parsons, Esq. which will be laid before the Trustees for their consideration, conformable to their proposal, and in case the same shall be considered, or shall be made satisfactory to them, they in such case award to Mr. Baker the premium of $20

Samuel Jaques, Esq. also presented for the Society's premium, of the improved Leicester breed of long-woolled Sheep, having a cross of the South down, one Ram and six Ewes. They were bought by him in Pennsylvania, and from thence brought into this State. Although your Committee know that the intention of the Society, in the proposal offered in the terms of that premium, was, to encourage the importation of the animals from some foreign kingdom or state—and that therefore, strictly speaking, Colonel Jaques would be entitled to no premium on the terms of those proposals; yet your Committee consider the animals are in this State a new and very important race of Sheep, although precisely not of the description proposed, and that Col. Jaques has at considerable expense and trouble, introduced them into it. They, therefore, recommend that a premium be granted to him of $50

The Hon. Thomas H. Perkins, Esq. also presented for exhibition, a Ram and two Ewes of the long woolled Sheep of the Netherlands, the length of whose wool was greatly superior, and its fineness but little inferior, if at all, to those of our present breeds. And although it was not the intention of that distinguished merchant to stand candidate for any premium, his sole purpose being to aid in the improvement of our breed of Sheep, and thereby to encourage the agriculture and manufactures of his native State, yet your Committee, apprehending that all exertions of this kind, so honourable to the individual, and so advantageous to the community, should receive some mark from our Society of its sense of the benefit conferred on the Commonwealth, they therefore recommend that the Gold Medal of the Society, of the value of fifty dollars, be presented to Mr. Perkins, for this distinguished and successful effort to improve the breed of Sheep in Massachusetts.

JOSIAH QUINCY,
NATHANIEL INGERSOLL,
THOMAS WILLIAMS.

Noddle's Island.

No. III.—On Manufactures.

The Committee on Manufactures award:

The first premium for Broadcloths, to James Shepherd & Co. of Northampton, $30

The second premium for Broadcloths, to the Wolcott Woollen Manufacturing Co. 20

The first premium for Household Cloth, to Jonathan Mann, of Worcester, 12

The second premium for do. to Stephen Buttrick, of Framingham, 8

The first premium for superfine Cassimere, to the Wolcott Woollen Manufacturing Co. 15

The second premium for do. to James Shepherd & Co. of Northampton, 10

The first premium for Superfine Satinet, to Daniel Ellis and Son, of Walpole, 10

The first premium for fine Flannel, to James Howorth, of Andover, 10

The first premium for Carpeting, to Sarah Patrick, of Worcester, 15

The second premium for do. to Adolphus Bartholomew, 7

The first premium for Linen Cloth, to Anna R. Putnam, of Grafton, 8

The first premium for Diaper, to Mrs. Putnam, 10

The second premium for do. to Susan Young, of Newbury, 5

The first premium for Sewing Silk, to Lemuel Healey, of Dudley, 5

The second premium for do. to Caroline Bronsdon, of Milton, 3

The following gratuities are also awarded:

To Clarissa Fay, of New Braintree, for a very good specimen of fine Flannel, 5

A premium being withheld on account of a deficiency in the number of yards, the Committee recommend the gratuity in consideration of the excellence of the fabric and the importance of the manufacture.—And for the same reasons a gratuity of $5

To Susan Warren of Chelmsford, for a piece of Linen of household manufacture. 5

To George Johnson, of Salem, for a specimen of Duck by machinery of recent invention, 10

[This Duck is thought superior to any brought to this market from Europe, and can be afforded at a price advantageous to the purchaser. The character of the machinery employed, and the quality of the article, afford a hope that duck may become one of our staple articles.

To Gerry Fairbanks, of Boston, for fine Beaver hats, $20

[Hats of the same quality are still imported. The committee have therefore recommended a liberal gratuity in this case, as there is both stock and skill enough in the country to put a stop to the importation.]

At former exhibitions the imitation Leghorn Hats have been of a medium quality; this year there was one specimen from Vermont perhaps finer than any ever imported. As it was manufactured in another State, the committee are not authorized to do more than to commend the excellence of the fabric.

For other specimens of Straw and Grass manufacture, they recommend gratuities as follows:

To Ann Dalrymple, of Marlborough, for Straw Bonnets, $5

To Miriam Haven, of Hopkinton, for do. 5

To Sally & Eliza Perry, of Brookfield, for a Grass Hat, 5

To Betsy Bennet, of Framingham, for an imitation Leghorn Straw, 5

To Susan Sherman, of Marlborough, for do. 3

To Mary and Hannah Dobben, of Beverly, for Straw Bonnets, 3

Gratuities to the following persons are likewise recommended for their specimens of ingenuity and industry:

To Fanny Pierce, of New Braintree, for a counterpane and coverlet, 5

To Sally Penniman, of do. for a hearth rug, 3

To Caroline Fiske, of Waltham, for a counterpane 3

To Susan Sterns, of Waltham, for a knit mantle of cotton yarn, 2

To Mehitable R. Dean, of Mansfield, for a hearth rug, 3

To Priscilla Cotton, of Plymouth, for a hearth rug, 3

To Samuel B. Pope, of Boston, for a specimen of men's boots, 5

To Ann Heath, of Roxbury, for specimen of fine cotton hose, 5

To Rebecca Johnson, of Boston, for a hearth rug, 3

To Sarah Glover, of Dorchester, for a cotton counterpane, 3

To Rhoda Holman, of Bolton, for a fabric of silk weed, 2

To Levi Sawyer, of Bolton, for woollen hose, 2

To a female of Boston, for a very fine hose of merino wool, 2

To Sarah Moore, o Brighton, for fine down tippets 2

To Sarah, Polly and Hannah Lewis, for various articles manufactured from Down, and for *Artificial flowers*, 6

To Nancy Wheeler, of Worcester, for Fans manufactured from feathers, 2

Messrs. Barrett, Tileston & Co. of Staten Island, presented for inspection some very handsome Woollen Table Cloths and Silk Handkerchiefs as specimens of their work in the art of Printing and Dying. These deserve mention as highly creditable to the taste and skill of the manufac-

turers. The Handkerchiefs exhibited were originally striped and crossbarred silks. They were shop goods damaged; the original colors were extracted; they were re-dyed and printed as exhibited.

With respect to the progress of our principal woollen manufactures, the Committee think it may be useful on this occasion to remark, that Flannels of every degree of fineness required for home consumption, may be manufactured at reasonable prices with the machinery and skill now in the country. That our best cassimeres are substantial, well made and well finished, and approach nearer to those of first quality made in England, than our best broadcloths do to the best of that country.

That our best Broadcloths are improving progressively with the gain of experience, and faster as respects goodness and the style of finishing, than fineness, and there is still room for improvement in the dyeing and dressing.

There were no extra fine Broadcloths at the exhibition. This may be accounted for without discrediting the manufacturers, by adverting to the fact that there is a full demand for cloths of a medium quality, at prices which give a large profit; the manufacturers are under no inducement therefore to attempt extra fine cloths. However much it might gratify our pride to see cloths of this description spread before the public at our annual exhibitions, it is neither for the interest of the manufacturer nor of the country, that it should at present be gratified. The best cloths shown at the hall this year, were some pieces from the Litchfield Woollen Factory in Connecticut, offered not for premium, but for exhibition; and these were thought by the Committee deserving of an honorable mention on this occasion. No Cotton Cloths were exhibited; and this among other circumstances may be considered as proof that they require no encouragement beyond that afforded by the present good market.

RICHARD SULLIVAN,
WM. LAWRENCE. } *Committee.*

Brighton, Oct. 10, 1821.

No. IV.—INVENTIONS.

The Committee of the Massachusetts Society for the promotion of Agriculture, to whom was referred the subject of Inventions, report:—

That they have had the gratification of inspecting a number of machines connected with the facilitating manufactures and the labours of agriculture, which have been deposited in the society's room, but none coming within the exact terms of their commission, except a Cast Iron Roller, which was duly entered for premium by Aaron Willard, jr. of Boston. This roller is apparently an improvement on the ordinary roller. It consists of two rollers moving upon one axis, and thereby turns easier and makes less ridges. But the owner not being present nor any person in his behalf, the Committee have not been able to make those inquiries which are necessary to enable them to award any premium.

The next machine presented for their examination and entered for premium, was a Vertical Family Spinner, invented by John Brown, of Providence, and presented for premium by J. R. Newell. It is apparently capable of spinning with from six to twelve spindles, and it was stated to your Committee that a girl of fifteen years of age of common capacity, is capable of tending it; that the thread may be guaged at any number which may be wanted. The size is very compact and takes up a less number of square feet on the floor, than a common spinning wheel. But the Committee had no certificate of its power, or evidence of its being used in any family, and found to be by experiment capable of facilitating domestic spinning. In their opinion this is the only test of its real utility. They think it a sufficiently simple and ingenious machine. But whether it will perform all that it is promised, your Committee are for the reason above stated, not able to decide; and the ma-

chine not being within any of the specified objects of premium, your Committee do not deem themselves justified in recommending, under these circumstances, any specific premium.

The machine which most attracted the attention of our Committee, was one presented by Joseph Pope, Esq. of Boston, a gentlemen long known to the public by his inventions and mechanical ingenuity. This machine is patented; intended to work by hand, in its present model, but easily capable of being enlarged and applied to a horse power.

The material to be threshed, passes through opposite sets of surfaces placed transversely in a frame. They are respectively moving rods; and constitute a threshing power on an open floor composed of stationary rods.

It was stated to your Committee that it threshed 50 bushels of grain in 12 hours; and 4 bushels and 12 quarts of oats in 1 hour; and that a common sized sheaf passes through it and is completely threshed in 1 minute. The labour is done by two hands, one destined to turn it, the other to feed it, or one man and two boys are sufficient for the same purpose.

In the experiment made before the Committee, it threshed the grain out perfectly. And it is obvious that with a very small expense, it may be converted into a machine for cutting straw without any injury to its threshing power.

Owing to an accident, for which the owner of the machine is not responsible, it was not duly entered, although it was brought to Brighton and deposited in the society's room in proper season for that purpose.

As your Committee consider the machine as likely to be very useful, and as Mr. Pope has been at great expence and trouble for the purpose of bringing it to Brighton, your Committee apprehend that some notice ought to be taken of it, and they therefore recommend that he should have a premium of $20; he producing the requisite certificates of its being used and approved by a practical farmer.

Mr. Newell also presented for premium, a Corn-Sheller, on a horizontal movement, on a wooden barrel.

The Committee did not see its power, but apprehend it may be made a useful machine, with some improvement, but do not consider themselves authorized in its present state to award a premium.

The same gentleman presented for exhibition a number of excellent and approved English machines, and also some of the invention of this country, among these they notice

An English Turnip Cutter.

Three Double Mould Ploughs.

Batson's Scarifier.

Batson's Cultivator.

Howard's Patent Plough.

Also, an English Hay Maker, sent from Baltimore. All of them are worthy of the attention of gentlemen, interested in improving the agriculture of the country, and their being brought to Brighton for exhibition does great credit to the attention and zeal of Mr. Newell.

A Patent Threshing Machine, invented by ——, and also a Patent Hulling or Smut Machine, accompanied by strong and numerous printed recommendations, were presented for the inspection of your Committee, but they had no opportunity to judge of their respective operations.

JOSIAH QUINCY,
CYRUS ALGER,
PAUL MOODY.

No. V.—WORING OXEN.

The Committee appointed by the Massachusetts Society for Promoting Agriculture, to decide on the claims for premium for the best *Working Oxen*, at the Cattle Show at

Brighton, Oct. 10, consisting of John Welles, Silas Gates and Elijah Perry, report:—

That they were well pleased to find amongst the other distinguished evidences of improvement at their show, an increased number of Working Cattle, superior to any previous exhibition.

Twelve yoke of Working Oxen were entered and appeared to contest for the premiums offered by the Society.

The Cattle were in general in their training more perfect, and the committee feel confident that the community may look forward to the most gratifying results.

After taking into view the *strength* in reference to their *age* and *size*, the *equality* of *match*, the docility and *training*, as well as other *general circumstances*, the Committee unanimously agreed to award the following premiums:

To Luther Whitney, of Sutton, first premium,	$30 00
To Peter Darling of Sutton, second premium,	25 00
To John Sherman, of Sutton, third premium,	20 00
To Daniel Marble of Sutton, half of the fourth premium,	7 50
To Jonas L. Sibley, of Sutton, the other half of the fourth premium,	7 50
To Capt. Joseph Curtis of Roxbury, the fifth premium,	10 00

The Committee were all pleased to see so favourable an illustration of the benefit of the Ox Team, as was generally presented; the use of which cannot but be considered as promoting one of the most essential interests of the state.

To the honour of a small but respectable section of the country, the town of Sutton, it receives a principal part of the premiums of the Society. But it is believed that no man will doubt the distinction is well merited. It is to be hoped that other parts of the state will feel excited to such an exertion, as will spread the evidences of our farmers care and skill more equally over the state, and thus the

great object of the Society in the advancement of the honour and interest of the Commonweath be promoted.

(Signed) J. WELLES, *Chairman.*

No. VI.—PLOUGHING MATCH.

THE Committee on the Ploughing Match, consisting of John Prince, Benjamin Goddard, and S. G. Derby, having attended the duty assigned them, beg leave to report:—

That the ground selected for the purpose by the Committee of Arrangements, was a very tough green-sward of 20 years lay, and had been chiefly used as a pasture for fat cattle, was previously laid off in lots of sixteen rods long, and one and a quarter rods wide, making one eighth of an acre, (which was less than was wished, but being the only spot convenient that could be procured, could not admit of their being larger)—the soil excellent and free from stones or trees, and each team had a perfectly equal chance. The ploughs were duly entered for the contest, and the ploughman drew for lots as follows:

No. 1.—Aaron Davis Williams, of Roxbury, one pair of oxen, Lewis Bliss ploughman, David Howe driver—Warren's Dedham plough, with wheel and cutter—18 furrows—finished in 34 minutes.

No. 2.—Jonas L. Sibley, of Sutton, one pair of oxen, Samuel Sibley ploughman, Peter Darling 2d, driver—Common Sutton plough, with wheel—17 furrows—23 minutes.

No. 3.—Stedman Williams of Roxbury, two pair oxen, Stedman Williams, ploughman, Samuel Prince driver—Warren's of Dedham plough, with wheel—18 furrows—26 minutes 30 seconds.

No. 4.—Joseph Curtis, of Roxbury, two pair of oxen, Luke Rollins ploughman, Amos Wyman driver—Warren's Dedham plough, with wheel and cutter—20 furrows—27 minutes 30 seconds.

No. 5.—Luther Whiting, of Sutton, two pair oxen, Royal T. Marble ploughman, Luther Whiting driver—Sutton plough, with wheel—16 furrows—30 minutes.

No. 6.—Aaron D. Williams, of Roxbury, one pair oxen, Thomas Howe *ploughman and driver*—Warren of Dedham plough, with wheel—19 furrows—46 minutes.

No. 7.—Silas Dudley, of Sutton, two pair oxen, Silas Dudley ploughman, Joseph Dudley driver—Warren of Dedham plough, with wheel and cutter—17 furrows—26 minutes.

No. 8.—Isaac Cook, of Brookline, one pair oxen, Caleb Miller *ploughman and driver*—Warren of Dedham plough, with wheel and cutter—19 furrows—33 minutes.

No. 9.—Moses Seaver, of Brighton, one pair oxen, Moses Seaver ploughman, Benjamin Porter driver—Howard of Hingham's plough with wheel—20 furrows—24 minutes.

No. 10.—John Sherman, of Sutton, one pair oxen, Asa Cummings ploughman, John Sherman driver—Sutton plough with wheel—18 furrows—22 minutes.

Previous to the ploughing, it was distinctly stated by the Committee, that the furrow must be no less than 5 1-2 inches deep, and their greatest wish as little to exceed 10 inches in the width of furrow as was possible, and not to hurry their cattle, as they conceived the *best work* could not be performed if over driven—and that goodness of work, together with that of the savings of the labour of the cattle, would be a great object in deciding premiums, as well as cheapness of labour.

They have great pleasure in stating, that the work was well done, and most of it in a superior style, and that the reason for not extending their rewards was because the Committee had it in their power to award only three among ten claimants—indeed, they conceive praise is due to all the ploughmen, who discovered great skill in the management of their implements, and the cattle were universally excellent—and in consequence of the request of the Committee that they should not be hurried, they could gen-

erally have proceeded in another one eighth of an acre with ease.

The Committee have been unanimous in their awards after a very critical examination, as follows:

1st premium to Isaac Cook,		$20
	Caleb Miller, ploughman	10
	do. do. driver	5—35
2d premium to Joseph Curtis		12
	Luke Rollins, ploughman	6
	Amos Wyman, driver	3—21
3d premium to Stedman Williams,		8
	do. do.	4
	Samuel Prince, driver,	2—14
		$70

All which is submitted,

JOHN PRINCE,
BENJAMIN GODDARD,
SAMUEL G. DERBY.

No. VII.—Agricultural Experiments.

The Committee on Agricultural Experiments, to whom was also committed the inspection of sundry articles of Manufacture, for which premiums were offered, report:—

That five several parcels of Cheese, of more than one year old; and seventeen parcels of new Cheese, were offered for the Society's premiums; which, in the opinion of your committee, are superior to any hitherto exhibited; all made in the town of New Braintree, in the County of Worcester, excepting one parcel of five cheeses, made by Mr. John Ayres, of Oakham, in the same county; of the former, that from the dairy of Capt. John Hunter, was considered to be the richest and best made cheese, and is

entitled to the premium of ten dollars; that from the dairy of Capt. Ebenezer Tidd, the next best, and is entitled to the premium of five dollars. Of the new Cheese, that from the dairy of Mr. William Earl, was considered to be the best, and is entitled to the premium of ten dollars; that from the dairy of Major Roswell Converse, the next best, and is entitled to the premium of five dollars.

Several parcels of fine flavoured Butter were also exhibited, uncommonly well made, the buttermilk being more perfectly expressed than usual; that from the dairy of Miss Mary Clark, of Watertown, in the County of Middlesex, was considered to be the best; that from the dairy of of Col. Stephen Hastings, of Sterling, in the County of Worcester, the next best—the former is entitled to the premium of ten dollars, and the latter to the premium of five dollars.

For the greatest quantity of Butter and Cheese, made between the 15th day of May, and the first day of October, from not less than four cows, the quantity of the Butter and of the Cheese, and the number of cows, to be taken into consideration, Mr. William Earl, of New Braintree, has exhibited sufficient testimony, in the opinion of your committee, to entitle him to the premium of twenty dollars.

Messrs. Brewer & Jordon, of Roxbury, are entitled to the premium of ten dollars, for the best specimen of soal leather; for the next best specimen, Messrs. Benjamin Mirick & Co. also of Roxbury, are entitled to the premium of five dollars.

Five barrels of Flour, from the wheat raised the present season, on the farm of Gorham Parsons, Esq. in Brighton, and manufactured at the "City Mills," lately erected on the "Western Avenue," very little inferior in quality to the best made Philadelphia flour, were exhibited by Mr. Benjamin T. Reed, Agent of the Proprietors of said Mills, and are entitled to the premium of twenty-five dollars.

A sample of Starch, in imitation of the Poland Starch, manufactured by Mr. Robert Hewes, of Boston; and a sample of Mustard, manufactured by Mr. Abraham Bickford, also of Boston, were exhibited—both appeared to be of a very good quality, perhaps equal to any imported; no premiums the present year, for either of these articles, were offered by the Trustees.

The vegetables brought to the Society's Hall very far exceeded in quantity, variety, and size, those exhibited in any former year. The roots of Mangel Wurtzel, sent by Dr. Chaplin of Cambridgeport, were very large, and in great perfection. The Doctor also presented to the Society a very fine Watermellon, from his own garden, which weighed about twenty-three pounds. From the farm of Edward Sparhawk, Esq. of Brighton, some "Silverskin" Onions, uncommonly large. From the garden of Mr. William Ackers, of Brooklyne, some roots of the common red Beet, of an early kind, and of a size seldom equalled. Mr. Josiah Coolidge, of Cambridge, and Mr. Samuel Murdock, of Milton, exhibited some very large Winter Squashes. One from the farm of the former weighed forty-seven pounds. From the farm of Gen. Hull, in Newton, some Carrots, Ruta Baga, and English Turnips, all of them very large, "taken from a field of two acres, without any cultivation, but what was common to the whole field." From the farm of Capt. N. Ingersoll, of Brooklyne, some Arrak, being a new variety of the Carrot. From the orchard of Mr. Henry Houghton, in Bolton, in the County of Worcester, some Blue Pearmains, which were supposed to weigh not less than one pound each. From the garden of James White, Esq. in Dorchester, in the County of Norfolk two specimens of the Cotton Plant, which grew in the open air, without particular care; one of which was Sea Island, the other Upland. The pods on both were well filled with Cotton.

From the farm of Capt. Joseph Warren, in Brighton, some ears of Corn, said to be of a very productive kind, "from three stalks ten ears were taken." From the orchard of Col. James Wilder, in Sterling, a very large fine Apple, called "Eve's Apples." From the farm of Dr. Eliakim Morse, in Watertown, some fine ears of the eight and twelve rowed Indian Corn.

By order of the Committee,

THOMAS L. WINTHROP, *Chairman.*

Brighton, Oct. 9th, 1822.

The Committee on Agricultural Experiments submit for the consideration of the Board the following, in addition to their report dated the 10th day of October last, to wit;

That Col. Joseph Valentine, of Hopkinton, is entitled to the society's premium of $30, for having raised the greatest quantity of Indian Corn, being 119 bushels and 26-32 of a bushel, on one acre of land. "The soil is a deep yellow loam; in 1821, the land was cultivated with Indian corn, and manured with ten cart loads of green barn manure, spread on the ground, and eight loads of compost manure put in the hills. In the spring of 1822, the ground was twice plouged, and 20 cart loads of green barn manure spread on it; it was then furrowed in rows about three feet and a half apart; and about 20 cart loads of barn, hog and slaughter yard manure, were put in the rows; the last mentioned manure was mixed together with one hogshead of Smithfield lime; the seed was the Brighton twelve rowed yellow corn, the kernels placed about 3 inches apart each way; the corn was hoed three times, all the suckers were pulled out in July; and in August all the suckers were again taken away, together with the false stalks, and those that were smutty; on the first of September the stalks were topped; and on the 26th the corn was harvested, and spread on a floor under the roof of a long shed, to

give a good opportunity for drying it, there were 213 bushels of corn in the ear; one basket of which was shelled, and produced half a bushel and two quarts of shelled corn; so that had the whole been shelled on the day of harvesting it, the produce would have been 119 bushels and 26-32 of a bushel of shelled corn; on the 14th of Nov. the whole was shelled, and measured, and found to be 116 bushels and 28-32 of clear sound corn; the average weight of which was 58 to 59 lbs. the bushel; the entire expense of cultivating this acre of corn, including $35, charged for 40 cart loads of manure, was $44."

That Payson Williams, Esq. of Fitchburg, is entitled to the society's premium of $30, for having raised the greatest quantity of Spring Wheat, being 23 bushels and 28-32 of a bushel, on one acre. "In the spring of 1822, as early as the frost would permit, the ground was ploughed, and harrowed; the seed, two and a half bushels of the Gilman wheat, sown; again harrowed, and ploughed in fine, with a horse plough, and left in this situation with the belief that the crop would endure our New England drought better, as the surface would be enlarged, thereby retaining more of the dews than a plane surface; the result, compared with neighbouring fields, declares this belief not unfounded. As the field was seeded down with clover, herdsgrass, and red-top, this was also ploughed with the wheat; these plants not only stood the drought remarkably well, but at this time have completely covered the ground with the *Farmer's best carpet.* The quantity of grass-seed used by me, is never less than 12 lbs. of clover, and one peck of herds grass, to the acre. Here permit me to observe that innumerable are the instances in this country, where the farmer fails in his grass crops, by not allowing seed enough; and what is worse, the little he does give with such a sparing hand, is suffered to take its chance under that pest in agriculture called a bush harrow, which not only drags stones and other loose matter, into heaps, but

leaves the soil dead and heavy; and does not cover the seed deep enough to strive with our July drought effectually. It may be asked how the scythe is to follow the plough? to which I will answer, let the roller, an implement which every farmer would keep, did he consult his own interest merely, with a sufficient top or body to contain the larger stones, pass over the field lengthwise the furrow, in the dry part of the fall; this process will not only crush in the small ones, but even the surface for the scythe, without the least injury to the grass roots; to this digression I am impelled by no other motive, however much I may be mistaken, than the wish of advancing in some measure, the interests of my fellow citizens, whose good fortune it is to till the soil. I had the wheat cut very early, when much of the straw was green, which, after laying about two days, was in excellent order for the flail; after which it was equal to swail hay for fodder; the amount of grain by measurement was 26 bushels and 18-32, from one acre and 18 rods, the quality of the grain is excellent, not one kernel of smut or burnt grain in the crop; the seed prepared by a thorough washing, after which it was immersed in thick white wash, made from good lime, so as to coat over every kernel, no fears need be entertained from the plentiful use of this liquor, as by way of experiment I have planted wheat after its lying in this liquor four days, which vegetated well." The committee are of opinion that the roller should be used immediately after the seed is ploughed in, in preference to the fall, as recommended by Mr. Williams. Said Payson Williams is also entitled to the premium of $20, for having raised the greatest quantity of Potatoes, being 547 bushels, on one acre. "The land was twice ploughed, and furrowed three feet apart, and the manure, unfermented, made by sheep, and neat cattle, its quantity about 14 cords placed in hills two feet apart, hands immediately following the cart with hoes to finish the planting process, to prevent loss by evaporation; planting finished May 21—the kind of seed

used, was the South American reds, 28 bushels to the acre, cut so as to allow two pieces to the hill; the weeding finished the 15th of June, the second and last hoeing the first of July, the vines beginning to bud, and were about eight inches in height; a few scattering weeds were occasionally pulled up, but no other disturbance was given to the vines till harvesting the crop, which was finished November the 3d; and by a careful measurement was found to be 547 bushels, the expense of cultivating the acre of wheat, including $10 charged for the manure, was $24, 71; that of cultivating the acre of potatoes, including $14 for manure, $54."

That Mr. David Little, of Newbury, is entitled to the society's premium of $20, for having raised the greatest quantity of Mangel Wurtzel, being 970 bushels, and one half of a bushel, on one acre. "The situation of said acre is as follows—a swell inclining south-westerly, of a rich yellow loam, in 1821, it was planted with beets, manured with about three cords of compost manure, and produced about 530 bushels. May 9th, 1822, ploughed, harrowed and furrowed three feet apart; four and a half cords of compost manure were put in the furrows and covered with a plough; then a harrow was drawn lengthwise the ridge to smooth the land, the seed was then sowed one row on each ridge, with four pounds of seed, half the quantity would I think be sufficient; June 10th, commenced ploughing between the rows, and weeding, and thinning at different times till July 16th—the plants stood 10 or 12 inches apart in the rows, the work was done principally by boys, estimating two boys to be equal to one man. Oct. 31, Nov. 1st and 2d, they were harvested by men and boys, and produced 970 1-2 bushels of Mangel Wurtzel, besides 2 bushels of Carrots, and 109 Cabbages, three loads of the Mangel Wurtzel containing 137 bushels, were weighed at the town scales; the weight, according to the certificate annexed, was 8 tons, 2 c. 3 qs. 20 lbs. Six swine mostly fed with the thinnings from the beginning of weeding, until about the first of October; there are trees on

the said lot sufficient to produce 21 barrels of fruit; the entire expense of cultivating this acre of Mangel Wurtzel, including the cost of the manure and gathering the crop, was $23 96 cents."

That Mr. Adams Knight, of Newbury, is entitled to the Society's premium of Twenty dollars, for having raised the greatest quantity of Onions, being six hundred and fifty-one bushels, on one acre. "The soil is a rich gravelly loam, with a gravel bottom; in 1821, it was cultivated with onions, and cabbages; and was manured with about five cords of barn manure, and produced a good crop; after the crop was off the ground, there were five cords of barn manure, and two and a half cords of leached ashes ploughed in—in April 1822, it was once ploughed, and sowed in rows 14 inches apart, which took between 3 and 4 pounds of seed; in the course of the season it was hoed between the rows and weeded four times; in September the onions were harvested, and there were 651 bushels, the entire expense of cultivating this acre of onions, including 21 dollars and 37 cents, the cost of manure, was 57 dollars and 38 cents."

That Messrs. Tristram and Henry Little, of Newbury, are entitled to the Society's premium of Twenty dollars, for having raised the greatest quantity of common Turnips, being 687 bushels and a half on one acre. "The soil is a clay loam and had been down to grass 6 or 7 years—in 1821, cut about one ton of hay; it was then ploughed as deep as the sward would turn over; 10 cords of compost manure, the principal part of the compost was marsh mud, spread and well harrowed; it was ploughed in ridges three feet apart; about one pound of seed was sown with a machine on the ridges; and a hand roller made to pass over them, which completed the sowing; when out of the way of the fly, they were thinned to the distance of one foot apart on the ridge—they were twice ploughed and harrowed; and harvested the last of October; the entire expense of cultivating this acre of turnips including 20 dollars for manure, was 35 dollars and 32 cents."

That Silas Little, Esq. of Newbury, is entitled to the Society's premium of Twenty dollars, for raising the greatest quantity of common Turnips, after another crop in the same season; having raised 615 bushels on one acre. "In the year 1821, something less than a quarter part of the acre was cultivated with Turnips, and about five common cart loads of compost manure, such as salt marsh pulverized, strong earth and sand was laid thereon; the produce was 80 bushels, the other three fourths had been laying to grass five or six years; and the present year we sowed Flax seed, where the turnips grew the last year; having spread on about the same quantity and quality of manure as before; we pulled the flax soon after the blossoms had fallen off, and there was a middling crop; the other part of the acre produced about 700 weight of hay, which was cut on the 26th of June; and the whole was ploughed and manured, the quantity put on the acre was 19 cart loads of 40 bushels each—the quality of this manure was similar to that above described, but more sand in order to make the compost better, when mixed with our dark clay loam, with a clay bottom; nearly two thirds of this manure was spread on one half the ground, and after harrowing, was put into small ridges, with a small double mould board plough, two feet and nine inches apart; the other part of the manure was shovelled into furrows made with the plough, the same distance; the plough then passed between the furrows, covered the manure, and although so great a portion of the manure was spread on half the land, yet the other half produced about as much; the quantity of seed used was one pound and a half; the time of sowing was from the first to the tenth of July; the flax was pulled the 4th, and that part of the ground sowed the last; the whole was sown with a machine made for the purpose, and but one row on a ridge; when the turnips were up, and out of the way of flies, they were thinned with a hand hoe and fingers, at the distance of ten or twelve inches, and afterwards twice hoed and twice ploughed, with the

small plough above mentioned; the time of harvesting, from the 28th of October to the 1st of November, and there was found to be 615 bushels, well trimmed and fit for market, and about five or six bushels of large defective rotten ones; we have weighed several bushels, and find a bushel will weigh 59 lbs.—the entire expense of cultivating this acre of turnips, including thirteen dollars for manure, was twenty-eight dollars and seventy-five cents."

That Mr. Asa Rice, Jr. of Shrewsbury, is entitled to the Society's premium of Twenty dollars, for the account of the best mode of rearing, feeding, and fattening Neat Cattle. Said Rice is also entitled to the premium of Twenty dollars, for proving by experiments, to the satisfaction of the Trustees, the utility and comparative value of the Cobs of Indian Corn, when used with or without the grain itself, ground, or broken. A paper on the subject of raising Indian Corn, two successive seasons, with the aid of Plaister Paris, on a high hill on the farm of Mr. Rice, which from its difficulty of approach, had until two years since been neglected, was also exhibited. These communications are too lengthy to be inserted in this report, but your Committee recommend that said papers, together with three very interesting communications from William Hull, Esq. of Newton, on the best mode of raising Indian Corn, his mode of cultivating seven eighths of an acre, from which he procured 192 bushels of Corn in the ear, 4 bushels of dry Beans and several bushels of Turnips; and on the culture of Carrots, and Ruta Baga, be copied into the Society's Journal for January next.

Claims for premiums were also exhibited to your Committee by the following persons, for raising the greatest quantity of Indian Corn on one acre of land; to wit: Mr. Asa Rice, Jr. of Shrewsbury, raised 53 bushels; Mr. Nathan Howe, Jr. also of Shrewsbury, 75 bushels; Mr. Daniel Mears, of Lynn, 87½ bushels; Messrs. Tristram and Henry Little, of Newbury, 116 bushels and 9 quarts; Payson Williams, Esq. of Fitchburg, 116 bushels and 12 quarts; and Mr. Daniel

Burnham, of Newburyport, 117 bushels and 8 quarts. Mr. Jacob Wilkins, of Marblehead, raised 57 bushels of Barley, on one acre and $\frac{1}{2}$ of an acre. "April 12, 1822, the land was ploughed about 8 inches deep, the soil loamy, inclining to gravel, descending to the North East from a ledgy knoll, which included a part of the premises; 13th, sowed three bushels of six rowed Barley, on what I considered the largest half of the piece—at the same time sowed one and a half bushels of two rowed Barley, on the remainder; sowed grass seed over the whole, and ploughed, and harrowed the same in. When the six rowed Barley was about six inches high, it was mowed down, and left on the ground; this was for experiment. July 18, mowed the six rowed Barley, and put it into the barn. 24th, mowed, and put into the barn, the two rowed Barley. The six rowed Barley appeared to be about 12 days forward of the two rowed in ripening; both were stacked separately in the barn; and each quality thrashed and kept separate. August 30th, the Barley being cleansed, was measured; the six rowed measured 34 bushels; and the two rowed measured 23 bushels—the straw we consider in value to be equal to the labor." No premium was offered for raising the greatest quantity of Barley; but your committee are induced to recommend that the Treasurer be authorized to pay said Jacob Wilkins, the sum of Twenty dollars.

For raising the greatest quantity of common Beets, Parsnips, Ruta Baga, Cabbages, and dry Peas; for introducing any Grass not before cultivated in this Commonwealth, and proving by actual experiment, and produce satisfactory evidence of its superiority in any one quality, to any now cultivated; for the most satisfactory evidence on "Soiling Cattle," not less than six in number, and through the whole season, together with a particular account of the food given, and how cultivated; for making the experiment of turning in green crops as a manure, on a tract not less than an acre, and prove its utili-

ty and cheapness, giving a particular account of the process and its results; for proving by actual experiment, the best season and mode of laying down land to grass, whether Spring, Summer or Fall seeding be preferable, and with or without grain or different soils; for raising the greatest quantity of Vegetables, Grain, Peas and Beans excepted, for winter consumption of the stock on his own farm, and not for sale, in proportion to the size of the farm and stock kept, having regard to the respective value of said Vegetables as food, stating the expense of raising the same, and the best mode of preserving the same through the winter; for taking up in one season, on his farm, the greatest quantity of good Honey, and shall at the same time, exhibit superior skill in the management of Bees; for giving proof of having produced the largest quantity of dressed Flax raised on one acre: no claims for premiums have been exhibited.

The Board will perceive by the papers accompanying this report, that of the seven claimants for the premium for raising the greatest quantity of Indian Corn on one acre, the quantity produced by four of the competitors was very nearly the same. Your Committee in awarding the premium to Colonel Valentine, were induced to decide in his favor as well from the quantity of sound corn, as from the weight of the grain; it will be seen that Mr. Burnham's Council Bluff Corn, weighed only fifty pounds; that of Col. Valentine, fifty eight to fifty nine pounds the bushel.

For the Committee,

THOMAS L. WINTHROP, *Chairman.*

Boston, Dec. 28, 1822.

[The Trustees of the Massachusetts Agricultural Society believe that they cannot render a more acceptable service to the cause of agriculture generally, than by publishing the letters, affidavits, and other evidence, furnished by the Candidates for their premiums, whether the persons who claimed them were or were not successful. The greatest benefit derived from offering

premiums is the exhibition of the various processes, which were pursued to enable the parties to become Competitors for them. Cattle shows and rewards for agricultural success would be of comparatively small value, if the *simple fact* of the successful experiment only should be announced. The public would be little benefited by the knowledge, that seven or eight persons had raised 100 bushels and upwards of Indian Corn to the acre, if they were uninstructed as to the means, by which this crop in our cold, and unfriendly climate, had been produced. The fact, that such an increase had taken place, even in a few cases, would go far to shew the advantages of competition and the spirit which pervades the state, but still the great mass would be left to conjecture by what art, perhaps magical, such an effect had been produced. The following letters will shew, that the "magical" art is within the reach of every enterprizing farmer, and that it consists simply in greater industry, and more skill which all may imitate, and probably with equal success.]

Hopkinton, November 15, 1822.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

THE following production of one acre of land cultivated with Indian Corn by the subscriber on his farm in Hopkinton in 1822, is offered for premium. The soil is a deep yellow loam; in 1821, the land was cultivated with Indian corn, and manured with ten cart loads of green barn manure, spread on the ground, and eight loads of compost manure, put in the hills. In the Spring of 1822, the ground was twice ploughed and twenty cart loads of green barn manure spread on it. It was then furrowed in rows about three feet and a half apart and about twenty cart loads of barn, hog and slaughter yard manure, were put in the rows, the last mentioned manure was mixed together with one hogshead of Smithfield lime, the seed was the Brighton twelve rowed yellow corn, the kernels placed about eight inches apart each way. The corn was hoed three times, all the suckers were pulled out in July, and in August all the suckers were again taken away together with the false stalks and those that were smutty. On the first of September the stalks were topped and on the twenty-sixth the corn was harvested and spread on a floor under the roof of a long shed, to give a

good opportunity for drying it. There were two hundred and thirteen baskets of corn in the ear, one basket of which was shelled and produced half a bushel and two quarts of shelled corn, so that had the whole been shelled on the day of harvesting it, the produce would have been one hundred nineteen bushels three pecks and two quarts of shelled corn. On the fourteenth of November the whole was shelled, and measured and found to be one hundred and sixteen bushels and three and a half pecks of clean sound corn. Weight of the corn from 58 to 59 pounds a bushel.

EXPENCES.

Ploughing - - - - - - -	2 50
Manure - - - - - -	25 00
Seed - - - - - - - -	50
Furrowing and planting - - - -	4 00
Hoeing - - - - - - -	4 00
Suckering and topping - - - -	4 00
Harvesting - - - - - - -	4 00
	$44, 00

The value of the suckers and stalks we consider equal to two tons of English hay.

Yours respectfully, JOSEPH VALENTINE.

This may certify that I have measured and staked off the above land cultivated with Indian Corn to the best of my skill and judgment and there is one acre and no more.

SULLIVAN SHEFFIELD, *Surveyor.*

This may certify that I was overseer and assisted in cultivating and harvesting the above stated acre of corn and the foregoing statement relative to the same is true according to the best of my knowledge and belief. DAVID JORDAN.

We the subscribers do hereby certify that we assisted in cultivating and harvesting the above stated acre of corn, and

we also measured the corn in the ear, and afterwards shelled it and measured it in the kernel and the foregoing statement relative to the measure thereof is true.

NATHANIEL NASON.
NEWELL POND.

I hereby certify that I have employed the persons above named to cultivate, survey, measure and harvest the above stated acre of corn as by their certificates above appears.

JOSEPH VALENTINE.

MIDDLESEX, ss. *November*, 1822.

Then the above mentioned Joseph Valentine Esq. Sullivan Sheffield, David Jordan, Nathaniel Nason and Newell Pond, personally appeared, and made oath to the truth of the above certificates by them subscribed.

ELISHA FAIRBANKS, *Justice Peace.*

Newburyport, October, 1822.

This may certify that I have surveyed and marked off one acre of ground planted with Indian corn, in the Town of Newburyport nearly opposite the Court house—at the request of Mr. Daniel Burnham, the owner of the crop.

JOSEPH GERRISH, *Surveyor.*

ESSEX, ss. *November* 15, 1822.

Personally appears Joseph Gerrish signer of the foregoing certificate and made oath before me that the same is true.

JACOB GERRISH, *Justice Peace.*

COMMMONWEALTH OF MASSACHUSETTS.

ESSEX, ss. *November* 18, 1822.

Personally appeared Daniel Burnham and Daniel Eaton and severally made oath that the annexed statement signed by Daniel Burnham of a crop of corn raised on the acre of land above specified is to the best of their knowledge and belief, true in all its parts.

Before me,

JACOB GERRISH, *Justice Peace.*

SIR,

On the 7th or 8th of October, I desired you by mail, to enter an acre of Indian Corn, for a premium, from the Massachusetts Agricultural Society—Mr. Tristram Little of Newbury, says that at Brighton, he desired you (in my behalf) to do the same, if you had not received my notice. I therefore conclude you have done it, and will proceed with my statement. The seed was raised at Council-Bluff on the River Missouri. It was received at that place, from the Maha Nation of Indians. The kernel is large, free from flint, and filled with a sweet white flour. It is generally eight rowed, though some of it is ten and twelve rows. It was brought to this quarter late in May 1821. I received a few kernels of it, and planted it, last of May or the first of June. Such was its promise, through the season, and such its bounty at harvest, that I thought it might become a valuable acquisition to this region. Accordingly the last Spring, I took a piece of land, such as is called common tillage ground, rather a light soil, inclining a little to gravel, and having a northern aspect. This is its character given by those, I have consulted, and who are considered good judges. The land had lain to Grass for the two years previous, without manure, but either from the failure of the Grass-seed or some other cause, the crops were quite scanty. The sward was so tender and broken, and the plough clogged so much, that it could not be turned so well as was wished. As soon as turned up, a harrowing succeeded, then the holeing, at the distance of four feet one way, and three the other. Five cords of common barn manure (about half new, and half old,) were put in the holes in a very coarse state. The greater part of the manure, I think ought to be called strong, some of it however was very feeble.—Three kernels were placed in a hill. Nine quarts of seed, were put on an acre and a quarter. It was my intention, that the planting should be done, as well as it could be, but from circumstances beyond my controul, I consider the whole process of planting, to have been badly

executed. The ploughing and planting, were done from the 4th to the 7th of May. Immediately after planting, the ground became so parched, with drought, that much of the seed failed. To supply the deficiency of standards, about the 25th of May, I placed seed in drills, from which when large enough, I transplanted into the field—say from 450 to 600 plants. As it is the opinion of many, that transplanted corn does not succeed well, perhaps it may not be thought amiss, if I observe, that from earing time to harvest, the transplanted could not be distinguished from the other. The corn was hoed four times, in the course of the season, without ploughing between the rows. The fourth time was merely loosening the surface of the ground, and destroying the weeds. The appearance of the corn was rather unpromising, until the rains had wet the manure. It then exhibited a very remarkable growth, and its luxuriance became so great, that it was apprehended by many, that the crop was much at hazard. I planted some of this seed, in the drill method, each standard was from fifteen to twenty inches asunder, and I believe (if I may regard this small experiment,) that if the field had been planted in this form, the crop would have been more abundant. This method would give sun and space to the shoots, from which much of the crop may be expected; but they were so crowded, by being in hills, that they could not have proper expansion—for this reason, I think this corn requires this method, much more than our common corn. The height of the stalks is not greater than much of the common corn, but above and below the ears, they are much larger. It was not uncommon, to see from three to five large shoots from a kernel, and on a shoot two good ears. The last season I suspected, that the best and most abundant crops might be obtained from the mixed-seed—this year, since harvest, I seem fully convinced that this will prove the fact—this is likewise the opinion of practical farmers, who have examined it, and bespoke some of the mixed-seed. I expect to plant the next season an-

other field, in which case I shall surely make use of mixed-seed and without apprehension, of its not coming to maturity—and shall plant in the drill method, leaving the standards, at least fifteen inches from each other. What I mean by mixed-seed is, when the kernel has become in a degree flinty, from receiving the *Pollen* or *Farina* from our flinty corn. My field became much mixed from the corn in the surrounding gardens—this I do not at all regret, for I am confident, that I had on the same space, a heavier crop than where I had pure-seed, on ground, much better, and much better prepared, than the field was—and this pure-seed was fully ripe, and was taken in the 24th October.

The fodder on the field, was abundant, it seems the sober estimate of the best judges, that on an acre and a quarter, from the tops and the bottoms, it was fully equal to two tons of English-hay. The time and labour in cutting and cureing the fodder, was I believe three times as much as on common fields of the same size. The harvesting which was done by cutting up the bottoms, was about in the same proportion. The topping of the corn was done about the 20th of September. The harvesting, from the 18th to the 24th of October. In husking the corn, two qualities were made. Of the prime Corn there was 110¼ bushels, of the inferior, there was 7 bushels, making in whole 117¼ bushels. I am decidedly of opinion that had the field have been planted with any of our common-seed, under similar circumstances, that from fifty, to sixty bushels would have been the extent of the crop. On this question, I have consulted with those, who are considered, the most judicious farmers; who are acquainted with the land, and with the manner of its cultivation, this season, and but one of them, has given an idea of more than fifty bushels. It may seem very extraordinary to make so great a difference, between this, and that of our common-seed, but should I do otherwise, I should trespass on my judgment. Much of the labour in the cultivation, was done in broken time, and in connection with the other part

of the field, (half an acre, which was corn and potatoes,) so that I am prevented from that accuracy in the exact expence which I wish.—I dare not say that it was less than sixty-five dollars, and this is the sum at which I place it, including manure, land-rent and every other expence. The field was in the middle of the town, and as it was much exposed, was robbed of some of its best ears. It is thought, that it suffered a loss in this way of at least three bushels; but this loss can neither be ascertained, nor brought into the account. All I have hitherto said has been in favour of this corn. I will now revert to the other side. Although it came to maturity the last season, and has done the same this, and although I believe that most of our seasons will give it its full growth; yet I think from the pure seed in some seasons, the corn would be in danger of injury, as corn is commonly placed after husking, the reason for this opinion is, that I believe the cob to contain more moisture than that of any of our common corn. If I am here right, it reduces the value of the *pure seed* for common cultivation. As an experiment, I planted this year, on the 20th of June, pure seed in fifty or sixty hills, some of it on cold, and some on warm ground, it was taken in October 25th, it was well grown, and apparently ripe, and keeps well in trace, yet the cob was so full of moisture, that I am confident it would injure much, if placed as corn usually is. I am far from considering the mixed seed as liable to this objection. But if it could be made certain, that the pure seed would in all seasons, come to maturity, as fully as our common seed, yet I think the mixed, is to be preferred, for the heaviest crops, and from the mixed-seed, I believe much more may be expected from it, than from any corn we have among us. In saying this, I am aware, to whom I am addressing myself, and that I ought to be diffident; and to think that a more competent judge than I know myself to be, might give a different opinion. Another objection is its weight, I weighed some of it, as soon as

taken from the cob, and it was 48 pounds to the bushel; it was then thoroughly cured by kiln-drying and its weight was then exactly fifty pounds. Here perhaps, it is just to recollect its freeness from flint. After drying, it was ground into meal, and tried in various ways for bread, and the result was much in its favour. It requires of boiling water, to wet a pound, six and a half jills. At the same time, trial was made of some of our yellow meal, from the last year's corn, and it required four and a half jills to the pound. I have now to the extent of my observation, traced this experiment, from receiving the seed to its conversion into bread. If I have been minute and prolix, to tediousness, I must find my apology, in the responsibility I have felt, from presuming that no other field of corn, of this description, is offered to your notice. I am, Sir, with much respect, Your Humble Servant,

DANIEL BURNHAM.

Newburyport, 18th November, 1822.

Fitchburgh, Nov. 4th, 1822.

INDIAN CORN.

[To the Committee on Agricultural Experiments and Products.]

GENTLEMEN,

In conformity to the rules and regulations of the Massachusetts Agricultural Society, I send you a statement of the amount, together with the manner of culture, &c. of one acre of corn, the growth of 1822.

The quality of the soil is a reddish loam somewhat stony, such as is usually denominated by farmers, warm chesnut land, good for grain. Its situation also may be considered friendly to that culture, as it has a southeastern aspect, shielded on the north by a wood.

In the summer of 1820, after taking off a small crop of hay, the ground was broke up for a crop of winter rye,

which on the following summer produced a middling crop; immediately after this was harvested the stubble was ploughed in and permitted to ferment till late in Autumn, at which time I had about 12 cords of manure made by hogs, neat cattle, sheep, &c. spread as equal as possible immediately ploughing in the same across the stubble furrows.

As early as practicable in the spring of 1822, the ground was twice ploughed, harrowed and furrowed in the following manner, viz. striking back furrows with the horse plough so as to form ridges three and a half feet apart, between which were similar ridges, except their being the fair surface of the soil; on these were planted the corn by making holes in a zigzag form six inches apart with a board with teeth affixed; boys following dropping in and covering the corn with the hands.

The planting finished about the middle of May. The seed was soaked in brine for twenty-four hours and then rolled in plaster of Paris. The weeding finished the middle of June; the second and last hoeing about the last of the same month. As this was well performed and when finished it was discovered, that some of the corn had began to spindle or tassel together with its having been beat down by a storm, compelled me relinquish the third hoeing as I consider it erroneous to disturb the roots after the tassel bursts forth. At the last hoeing we carefully suckered the corn, saving the same for fodder. The corn being of the large kind, many of the stalks grew to the height of ten feet. The stalks were cut very early, as soon as the tassel was dead, and after being well cured, had two loads, equal in value to one and a half tons English hay.

The corn was harvested the first of October, and after husking the same we found sixty-six and one half baskets of three bushels each of sound corn, and three bushels of soft corn. On shelling a number of baskets of the same measure and taking an average between the greatest and smallest yield (the variations from the two extremes but one pint)

and found the product one bushel and three fourths of a bushel on fifty-six quarts of perfectly clean sound corn which gives one hundred sixteen bushels and $\frac{1}{2}\frac{2}{2}$ to the acre.

I attribute the success of this crop in a great measure to my having spread rather than put the manure in the hole as many fields in my immediate neighbourhood were almost destroyed by the drought and *worms*, some of them having half an acre cut entirely off, which had to be planted with potatoes. I need not mention that these fields were manured in the hills a method I fear but too much in use throughout the state. The soaking the seed in strong brine and rolling it in plaster was probably beneficial, as the ravages of the worms were only sufficient to make room for raising about one bushel of white beans.

By the annexed expence it will be seen that the cost to the cultivator (taking the whole of the manure to the charge of this crop and allowing for the top stalks, fifteen dollars) is a fraction less than *thirty-six cents per bushel*, nothing however is here allowed for interest on the worth of the soil, taxes, &c. these draw backs would not bring it over thirty-eight cents to the bushel. Your Humble Servant,

PAYSON WILLIAMS.

EXPENCES.

2 ploughings and harrowings, - - -	$3,00
12 cords manure at 12*s*. - - - -	24,00
Expence of planting with cost of seed, -	3,00
2 hoeings with suckering, the grounds being rather stony 13 days work at 83 cents - -	12,00
Cutting and harvesting the stalks, - -	5,00
Harvesting, husking and cribbing, - - -	6,00
	$53,06
I had almost forgotten *the shelling*, which however is usually performed evenings and stormy weather, say 4 cents per bushel, which the *cobs* in part will pay	4,65
	$57,71

Fitchburgh, September 12th, 1822.

This is to certify that I Philip F. Cowdin, being a sworn surveyor of the town of Fitchburgh, in the County of Worcester, have this day measured a piece of land for Payson Williams of said Fitchburgh, on which corn is now growing, and find it to contain one acre and no more.

P. F. COWDIN.

We the subscribers declare that we did this autumn help to harvest, husk, and measure a crop of Indian corn the product of one acre (as per certificate of P. F. Cowdin,) and found the same to be sixty-six and one half baskets of three bushels each and that on shelling a number of baskets (of the same measure) we took the average between their greatest and smallest yield (the variation but trifling) and found the product one bushel and three fourths of a bushel or fifty-six quarts of perfectly clean, sound corn: which gives a product from the acre, one hundred sixteen bushels and $\frac{12}{32}$. We would not be understood to testify that this is the precise amount of the crop, to one quart (as it is not only inconvenient but inexpedient to shell the whole crop) but that we feel satisfied that there is as *much*, as the above statement declares.

PAYSON WILLIAMS, *Owner.*

SOLOMON WILBER, *Assistant.*

Worcester, ss. *November 14th*, 1822.

Personally appeared Payson Williams and Solomon Wilber and severally made oath, that the above declaration by them respectively subscribed, contains the truth, and nothing but the truth. Before me,

CALVIN WILLARD, *Justice Peace.*

CARROTS AND RUTA BAGA.

[To the Trustees of the Agricultural Society of Massachusetts.]

GENTLEMEN, *Newton, 28th Nov.* 1222.

I sowed the present year, one acre of Carrots, on ground, one half of which was last year in carrots, and ruta baga,

the other half in potatoes, excepting a few rods, which was in grass. The parts of the acre which were in carrots, ruta baga, and potatoes, were highly manured the last year, and produced abundant crops. The few rods of mown grass was the last year, and adjoined the seven eighths of an acre, which I have described in my letter No. 1. It was ploughed at the same time and harrowed, and managed in every respect as the piece already described. After a very deep ploughing in April, fifteen cart bucks full of manure was spread on the ground, and immediately covered with the plough. About the middle of May it was harrowed and then ploughed, very deep in ridges, two feet apart. About the twentieth of May these ridges were throwed back into the furrows, and high ridges formed over the deep furrows, two feet apart. The seed was sowed in single rows, on the top of these ridges, between the 21st and 25th of May; about a pound to the acre. The seed not being of the best quality, and the season being unfavourable, in all the rows, it came up thin, and in many places, none at all. I expected but a very small crop. Early in June they were ploughed with a very small narrow plough, after ploughing they were weeded and hoed. They were so thin, that a great part of the work was done with a hoe. The field was ploughed, weeded and hoed, three times, and until the carrots had spread entirely over the ground, between the rows. The latter part of June, ruta baga, were set in all the vacant places on the rows, where the carrots had not come up. By the middle of July, the ground was entirely covered with the tops of the carrots and ruta baga. No weeds afterwards grew. The crop was gathered early in November, and the acre produced four hundred and thirty bushels of carrots, and two hundred and nineteen bushels of ruta baga, making six hundred and forty-nine bushels and an half of both.

I have made this communication, principally, to show the great importance of very deep ploughing, and thin sow-

ing. All the carrots in this field were very long and very large. They will find their way down as low as the ground is loosened, and there is this great advantage, when the root is so deep in the ground, the dryest weather will not injure them. On another account, perhaps this communication may be useful.

Those on the grass ground, broken up in 1821, were the longest, and the crop was the greatest. On this ground, few or no weeds grew, and the labour of hoeing and weeding was much less, than on the other parts.

If the ground is broken up early in the Autumn, or in the summer, which is preferable, and well harrowed and cross ploughed the next spring, I have no doubt but it is the best mode of raising them. It is certainly all ended with much less labour in weeding.

I sold a part of the carrots, in heaps on the ground, for ten dollars a ton, and a part that I carted six miles, for thirteen dollars and fifty cents a ton. My waggon carried thirty-three hundred and a half, as appears by Mr. Newell's certificate.

EXPENCES OF CULTIVATION.

First ploughing in the Spring, one yoke of oxen, and a man,	$2 00
15 cart bucks of summer manure, from my barn yard,	30 00
Ploughing to cover the manure, one yoke of oxen and one man,	2 00
Harrowing once over the ground,	75
Ploughing it in ridges, with a small horse plough, going four times in each ridge,	3 00
Turning the furrows back into the ridges, and going four times in each,	3 00
1 pound carrot seed,	75
Sowing the seed by hand, 4 days work for a man,	3 00
Amount carried forward	$44 50

Amount brought over	$44 50
Ploughing 3 times, after the carrots came up,	2 50
Weeding and hoeing three times, - - -	15 00
Setting out the ruta baga plants, on the vacant parts of the ridges, where the carrots did not come up, being 4 days work, - - -	3 00
Gathering the crop, 8 days work, - -	6 00
	$71 00

VALUE OF THE CROP.

10 tons of carrots, at $10 a ton, - - -	$100
5 tons of ruta baga at $8 a ton, - - -	40
	140
	71
Profits of one acre in carrots, and ruta baga,	69 00

And no account is made of the tops. I am &c.

WM. HULL.

This may certify, that I assisted in sowing, cultivating, and harvesting the carrots, and ruta baga, on the acre here described. That I likewise assisted, in measuring the whole, and weighing a large quantity of them; and that the statement here given by Wm. Hull, Esq. is correct and true, MATTHEW FARNHAM.

COMMONWEALTH OF MASSACHUSETTS.

November 30*th*, 1822.

Personally appeared William Hull, the owner, and Matthew Farnham, and made oath that the facts contained in the foregoing statement are true, before me,

TYLER BIGELOW, *Justice Peace.*

It is respectfully submitted to the judgment of the Trustees, whether this communication is entitled to any consideration. WM. HULL.

Watertown, November 8th, 1822.

I have this day weighed one load of carrots, weight of the same, - - - - - 21 cwt. 3 qrs.

Weighed also one other load, - - 12 cwt.

83 cwt. 3 qrs.

The above belonging to Gen. Wm. Hull.

JOHN TUCKER.

Deacon John Tucker, the signer of this is the sworn surveyor of hay at Watertown.

Newton, October 16th, 1822.

The subscriber hereby certifies that he has measured and marked off a piece of land for William Hull, Esq. of Newton on which a crop of carrots is now growing, which piece amounts to one acre and no more.

ELIJAH F. WOODWARD, *Surveyor.*

N. B. On the above named acre there are 84 young apple trees, of 5 or 6 feet height.

Also a considerable quantity of ruta baga interspersed among the carrots.

Middlesex, ss. *October 22d*, 1822.

Then the above named Elijah F. Woodward made solemn oath to the truth of the above certificate by him signed, before me, EBENEZER CHENEY, *Justice of the Peace.*

INDIAN CORN——*No. I.*

[To the Trustees of the Massachusetts Agricultural Society.]

Newton, 27th Nov. 1822.

GENTLEMEN,

I HAVE planted, the present year, what I supposed to be a full acre of Indian Corn, on my farm in Newton. It has

lately been surveyed by Deacon Woodward, a sworn surveyor, and it appears there is only seven-eighths of an acre, or one hundred and forty rods. In 1821, the ground was mowed, and produced about one ton of English hay. No manure was put on the ground that year. It had been laid down to grass eight years. In October 1821, it was broke up, and remained in that situation, until the spring of 1822. The last of April, it was well harrowed with a sharp iron tooth harrow. After this, a composition of three loads of night manure, mixed with nine cart bucks of rich earth dug from the side of an old stone wall, and ten bucks of summer dung from the cow yard, was equally spread over this land, and immediately covered by the plough, ploughing across the furrows. Between the 6th and 12th of May, it was harrowed three times with the same harrow. By this ploughing and harrowing, the sods were sufficiently broken in pieces and pulverized, and the ground was in a proper state for planting. Furrows were then drawn north and south, three and an half feet apart. No ridges were formed. Hills were then made with the hoe, in these furrows, two feet apart, not flat, but descending to the south, with a small bank of earth on the north side of each hill. This banking on the north side of the hill was only done on a part of the field. From this mode of planting, I calculated two advantages; *one*, the sun would have a more direct operation on the hill; the *other*, the tender plants, when they first came out of the ground, would in some measure be guarded from the cold north winds. It was not my intention to have put any manure on the land, excepting what had been spread and covered and mixed with the earth, with the plough and harrow. My farmer, having been accustomed to dunging in the hole, was so desirous of putting in a small quantity, that I consented, and about a pint of fine rotten summer dung was put in each hill. The corn was planted between the 15th and 20th of May, with four kernels in each hill, equidistant, about five inches. During the

season, it was ploughed with an horse plough three times, and hoed as often.

The first time it was ploughed from the corn; and in hoeing it, the furrows were filled up, and the ground level: the second time it was ploughed to the corn, and in hoeing the ground laid level as before.

The third time, two furrows were ploughed in the centre of the rows; and, in hoeing, the furrows were filled up and the ground left nearly level. The first ploughing and hoeing was the 5th of June; the second, the 20th; and the third and last, the 5th July.

As the ground, by deep ploughing and hoeing, had been rendered loose, I was of the opinion, the hills of corn would receive more nourishment, and stand stronger, by the roots running under the ground, in the whole space, between the rows, than by drawing the rich earth around the hills with the hoe, as is the usual custom. Besides, the dews, the light rains, and the sun, have a much greater effect on the roots, when the ground is left in the manner I have here described, than when the earth is banked up around the hill. And further, when high hills are made, the roots running horizontally, will run out of the ground and perish.

Every thing which had been anticipated with respect to the manner, in which this field of corn had been planted and cultivated, was realized. While other corn in the same inclosure, and near it, was perishing during the dry season, not a leaf in this field even curled, and no part of it, in the least degree, suffered by the drought. The second week in October it was harvested, and from this seven-eighths of an acre, was measured one hundred and ninety-two bushels, of ears, after the husks were taken off, equal to ninety-six bushels of shelled corn. The whole was sound, and suitable to grind into meal, excepting three bushels of ears. As an experiment, on about one half of this piece, was planted between the hills in rows, an hill of field beans, at the time the corn first appeared out of the ground. This cost little or no

labour, except the planting. As they would be entirely shaded by the corn, I thought there was little expectation of a crop. They however came up very soon, grew on with the corn, while it was small, and before they were shaded, had taken such strong hold of the ground, that I supposed the prospect very promising. They were gathered about the 20th of September, and my farmer judged there would be about four bushels. I saw them myself, and was of the same opinion. By an accident, only one bushel was preserved. I did not perceive that the beans injured the corn in any degree. The accident to which I have referred, was, they were put on the barn floor in the evening to thresh, and by some means about twenty head of cattle got to them, and we could only clean up about one bushel. As a further experiment, at the last hoeing English turnips were sowed over the whole field. They were so shaded by the corn, that the crop almost entirely failed. There were a large quantity of small turnips, but not more than three or four bushels of a good size, and worth gathering. Some part of the corn had sixteen rows, some part fourteen, and some part twelve. As the corn ripened, the husks opened from the ears in the field.

The Trustees have offered "To the person, who shall raise the greatest quantity of Indian Corn on an acre of ground, not less than 70 bushels, a premium of $30. If it should appear, that on the same quantity of land I have raised more corn than any other person, notwithstanding by admeasurement it falls a few rods short of an acre, I submit with cheerfulness to the judgment of the Trustees, whether by the spirit of the offer, and the liberal principles which govern the Society, I am not entitled to the premium. If I am not misinformed, there is a precedent in point, determined two years ago. If so, this settles the question.

As I before observed, it was my full intention to have planted an acre in the manner I have stated, and supposed there was that quantity until it was measured by the surveyor.

If the evidence accompanying this communication is satisfactory to the Trustees, that there was likewise raised on this same seven-eighths of an acre, four bushels of dry beans, I presume they will be considered as equal at least to eight bushels of Indian corn. I believe there can be no question, but one hundred bushels of corn may be more easily raised on an acre of ground, than fifty bushels of dry beans by any mode of culture. If eight bushels then is added to ninety-six, it will amount to one hundred and four on seven-eighths of an acre. If, therefore, a full acre had been planted in the same manner, the produce would have been equal to one hundred and eighteen bushels and an half, one peck three quarts and a fraction over, calculating a bushel of dry beans equal to two bushels of corn.

Value of the Crop on this Seven-Eighths of an Acre.

96 bushels of corn at 90 cents a bushel	$86 40
4 bushels of dry beans at $1,80 a bushel	7 20
524 bundles of top stalks, weighing after cured, from 6 to 8 pounds, at 4 cents a bundle	20 96
Butts, or bottom stalks and husks,	8
	$122 56

Expenses of Cultivation.

Breaking up the ground in October 1821, one yoke of oxen, one horse, ploughman and no driver	$2 75
Harrowing the ground in April 1822	75
Seed corn and seed beans,	75
3 loads of night manure,	12
9 cart bucks of rich earth to mix with night manure,	9
10 cart bucks of barn yard summer dung,	15
Cross ploughing the ground with a yoke of oxen and one man,	2
Harrowing three times,	1 50
Furrowing for planting,	75
One load of manure put in the hills,	2
Amount carried forward,	$39 50

Amount brought forward,	$39 50
Planting, &c.	2 25
Ploughing and hoeing three times,	6
Cutting, binding, stacking, and carrying the top-stalks to the barn,	3
Gathering and husking the corn,	5
Gathering and putting the butts in the barn,	2
	$57 75
Thus it appears that the value of the crop was	$122 56
All the expenses,	57 75

Neat profits of seven-eighths of an acre of Indian corn, $65 51

I am with respect your most obedient servant,

WILLIAM HULL.

I, Matthew Farnham, have lived with William Hull the whole of this season, and have done and assisted in doing every part of the labour on the seven-eighths of an acre of corn, which is here described, that I assisted in a very careful manner in measuring the corn; and the whole statement here made with respect to the planting, cultivation and quantity, both of corn and fodder, is perfectly correct. Had it not been for the accident, which happened with respect to the dry beans, which I was perfectly knowing to, I have not the least doubt there would have been as many, or more than four bushels. I gave that as my opinion before they were destroyed. MATTHEW FARNHAM.

Middlesex, *ss.* *Nov.* 30*th*, 1822. Personally appeared William Hull, Esq. and Matthew Farnham, and severally made oath that the foregoing statement and certificate by them respectively subscribed, and the facts therein contained are true. Before me,

TYLER BIGELOW, *Justice of the Peace.*

The subscriber hereby certifies, that he has measured a piece of land containing 7-8ths of an acre belonging to William Hull, Esq. of Newton, on which he has this season raised a crop of corn. On this land there are 58 young apple-trees of five or six feet height; also two large ones from fifteen to twenty feet in height, and one other at the border of said field. ELIJAH F. WOODWARD, *Surveyor.*

Newton, 23d Nov. 1822.

Middlesex, ss. Nov. 25, 1822. Then the above named Elijah F. Woodward made solemn oath to the truth of the above certificate by him signed, before me,

EBEN. CHENEY, *Justice of the Peace.*

Newton, 27th Nov. 1822.

GENTLEMEN,

The Trustees of the Society have offered a premium of $30 to the person, who shall make the most satisfactory experiment, to ascertain the best mode of raising Indian Corn, in hills, in rows or in ridges, &c. In my communication, marked No. 1, I have described the manner in which I cultivated seven-eighths of an acre the present year, while I refer the Trustees to that communication for general information of the manner in which the corn was planted and cultivated, I shall here describe the manner in which another acre in the same inclosure was planted, and state the reasons, why I consider the mode adopted in planting the former piece preferable to the latter, and preferable indeed to any which has come to my knowledge. On the same field, that was planted the 7-8ths of an acre, separated only by about one an half acre of carrots, the nature of the soil being the same, I planted and cultivated an acre of corn in a different manner. There was this difference in the culture of the two pieces.

The last mentioned acre had been broken up two years. Last year a part of it was in carrots, and a part in potatoes. The year before, a part had been in Indian corn, and a part in potatoes. Both years it had been highly manured, and produced abundant crops. It was ploughed once in the spring and harrowed. About the middle of May, it was furrowed out for planting. The same quantity of manure was carried on it, as was carried on the seven-eighths of an acre, described in No. 1. A part of it was planted in hills, about four feet apart one way and about three the other—a part of it in rows, four feet apart.

The manure, instead of being spread on the ground, was put in the hills and rows. It was ploughed and hoed three times; and the last time of hoeing, it was hilled in the usual manner, and that in rows ridged, drawing the earth up to the corn.

This acre, the first part of the season, and indeed until it tasselled out, appeared more promising than the 7-8ths on the other side of the field. In the month of August, when the dry weather came on, there was a material change. The leaves of this acre curled, withered, and turned yellow, and appeared in a perishing state. At the same time the piece on the other side of the field, grew most luxuriantly. Its colour continued a deep green, and not a leaf in the field even curled; and it remained in this situation until the corn was hard. When the crop on this acre was gathered, it did not exceed forty bushels. There was very little difference between the two parts. From this experiment, and the comparative view here taken of the subject, it appears to amount almost to demonstration, that the mode adopted in planting and cultivating the seven-eights of an acre, is much preferable to hills at a greater distance, and banked up in the usual manner, or in rows on ridges.

Besides the result of this experiment, there are other reasons founded in the nature of the thing in favour of the mode described in No. 1. In considering this subject, I should

presume the Trustees would think proper to take every thing into consideration, which could have a tendency to produce the greatest crop.

I shall therefore now state the reasons, why the mode described in No. 1, is preferable to any other which has been practised. And in the first place the result of this experiment is a very strong reason in its favour. By planting in this way, there will be about three times the number of hills, that there will be in planting in hills in the usual manner. In the next place, by spreading the manure equally on the ground, deep ploughing, and leaving the ground nearly level, the roots of the corn spread in every part of the earth, and not only have the strength of all the manure, but likewise of the whole of the soil. It is likewise preferable to planting in rows on ridges, because the ground can be lessened by hoeing around the hills, and the roots have a vacancy in every direction of spreading, without interfering. When the corn grows, there is room in every direction for it to spread, without one hill crowding on another. Besides, planting in hills in this way, the corn stands much firmer in the ground, and is not so liable to be broken down by heavy rains and winds. What may be considered a trifling circumstance, of the hills inclining to the south, with a small bank of earth on the north side, I thought had a very considerable effect.

Breaking up grass ground in the summer or autumn, and pulverizing the sods the next spring, in the manner represented in my first number, makes a better preparation for corn, than any other. The land has more strength, and will produce in proportion to its strength.

I examined a number of fields of corn in my neighbourhood, and it appeared that my hills had as many ears, and as large, as those planted at the usual distances. It consequently yielded both corn and fodder, in proportion to the number of hills.

I am with great respect your most obedient servant,

WILLIAM HULL.

This may certify, that I have carefully examined the foregoing statement, and as I did the principal part of the labour, it is within my own knowledge, that the facts it contains are true. MATTHEW FARNHAM.

COMMONWEALTH OF MASSACHUSETTS.

Nov. 30, 1822.

Personally appeared William Hull, the signer of this statement, and Matthew Farnham, the signer of this certificate, and made oath that the facts contained in this statement are true. Before me,

TYLER BIGELOW, *Justice of the Peace.*

Shrewsbury, 20th November, 1822.

ON RAISING, FEEDING AND FATTENING CATTLE, ALSO ON THE UTILITY AND COMPARATIVE VALUE OF THE COBS OF INDIAN CORN WHEN USED WITH, OR WITHOUT THE GRAIN ITSELF GROUND OR BROKEN.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

In the first place I select my earliest and best calves to raise, I let them suck the cow twelve weeks, which is my general rule, eight weeks twice a day and in sufficient quantity to keep them in a growing state, but am careful not to let them get fat. Four weeks longer, once a day, the two last however are allowed to take but about half the quantity of the two first; I keep a supply of good hay at their command all the while, as they will begin to eat when only a few days old, and then turn them out into good feed, without giving them any grain or meal. If I am raising a Bull, Cow or Ox, I would avoid giving them meal or grain; especially the first

or second years, as I would a pestilence. I begin with a creature so as rise upon the keeping.* In one instance, however, I have followed opposite plan, which tends to confirm me more in my belief. In April 1820, I had an uncommon heifer calf, which I set down for a premium calf, I knew very well, what I had got to do to obtain it, viz. to let it take what milk it would through the season and learn it to eat meal, which I did and presented it at the Worcester Fair, and obtained the first premium. I then tried to sell the calf, but could not; I considered it fit for nothing but the butcher's knife, and in fact not fit for that, it was neither veal nor beef. I then took it from the cow and put it to better than my usual keeping, but it lost its flesh and has appeared rather ordinary ever since, it appears to be crowded out of its natural shape. If I had reared the calf in my usual way I should have expected something extra from her but I now do not. To return to my mode of increasing their keeping, I give them a little better hay the first winter than the second. I make it my care and attention that my cattle do not lose in the winter what they gained in the summer which is too apt to be the case with some. I feed them as the weather varies, that is, in moderate weather they will not require so much, I endeavour to keep my barn tight and warm, I have witnessed with regret, farmers too often let their stocks of cattle remain out all day, through tempestuous stormy days in the winter, until they are chilled through, which must be very injurious, I take care that my cattle are sheltered from stormy days as much as possible. Fattening cattle is an employment which I like. I invariably aim to fat a creature as quick as I can. Every year since I commenced business for myself, which is fifteen, I have made one yoke of oxen good so as to command generally the

* We presume this means, so as to increase the quantity and quality of the food. Ed.

highest market price; with almost all those which I have fatted, I go through with all my spring work then turn them to pasture, in the fall I lay a foundation for giving them meal with green stalks small ears of corn and vegetables of some kind, I begin to give meal about the first of December and drive them to market the latter part of January, they generally weigh from 25 to 28 hundred the yoke, and from 300 to 330 pound of tallow. I would refer to Mr. Abijah White of Watertown, and Messrs. Davis, Miles and Pierce of Brighton who have generally purchased my beef. I give my cattle what meal they will bear; after I begin, they are allowed an average of three pecks per day for each yoke; by thus doing they will eat but little hay, I turn them out into the yard to lie during the night having a shed to go under at their pleasure which I consider far better than to remain in the barn. The kind of meal I have used for seven years past, almost exclusively for provender, is corn and cobs cracked and ground together, which is the best provender I have ever made use of for fatting cattle.* The reason I consider the cob useful, is, it swells in the creature and keeps him in good order; in no one instance since I have fed with this meal have my cattle been out of order by being cloyed or scouring, they are at all times regular, but when I formerly fed with clear Indian or oats and Indian, it was not unfrequent, that their bowels would get out of order, and I have had considerable difficulty in regulating them again, they lose two or three days, sometimes a week. When this kind of provender was first introduced in this vicinity it had its opposition like almost all new things, the second year, if I mistake not, which I made use of it, I thought I would try an experiment, as follows, by feeding one ox with corn and oats ground, the other with corn and cobs, having a yoke of oxen so even matched that no one who viewed the cattle appeared sat-

* We are by no means satisfied with the *reasons* assigned by Mr. Rice. The facts are what most concern us. Editor.

isfied which was the best, accordingly I fed them as above. The cob is computed to make a little more than a third, therefore I mixed the other with one third oats which was my former mode, I gave each ox an equal quantity at a time except that the one that had the corn and oats, some days became dainty, and would not eat his allowance, while the other kept a regular course, the allowance for both was little rising three pecks per day. When I took the cattle to market Mr. A. White bought them, they weighed about 26 hundred and a half, the one fed on corn and oats had 162 pounds of tallow, and weighed about half a hundred more; the one fed on corn and cobs had 163 pounds of tallow and Mr. White pronounced his beef half a dollar on the hundred better than that of the other mostly on account of the *colour of the beef.*

In another instance I took a yoke of oxen, which had done all my work through the season up to the first of November 1818, on my farm which contains over one hundred acres. They were a good sort of cattle about a middling size, and no more than in good working order. I then put them to fatting upon the cob and corn meal; they were fed with nothing but hay, and the corn meal, I turned them in the month of February 1819. Mr. White purchased them, their weight was about twenty-four and a half hundred and had almost three hundred pounds of tallow. I have however fatted two creatures a little differently from what I have above described, one was a steer four years old the 10th day of February 1821, the first of March following I began to give him this cob and corn meal. He had not, previous to this, ever been fed with any kind of meal, grain or roots, of any kind whatever. I gave him from four to six quarts a day of this meal and nothing else but good feed until the 27th of September, which day I drove him to the Cattle Show at Worcester, and they awarded me the first premium on beef, I then drove him

to the Brighton Fair the same year and they awarded me one of the premiums there on beef; I sold him, his weight was 1509 pounds, had one hundred and fifty-four pounds of tallow. I have another steer four years old the 12th day of April last, which I have treated in the same way the past season, I drove him to Worcester, the 25th of September of this year. and the trustees awarded me the second premium on beef. It has been remarked by some well informed Agriculturalists in this vicinity, that it is not on record at any other Cattle Show in this state, that the highest premium for beef has been carried by four year old steers, since the Worcester Agricultural Society was formed. There have been four anniversaries, in which I have taken the premiums for the best fatted ox, for the second best do. for the best milch cow, for the best two years old steer, for the best heifer from one to three years old, and for the best heifer calf, *all* of my own raising, and wholly of the native breed, except the heifer calf, which is a cross with DENTON. I have now three creatures preparing for the Brighton market, which I contemplate driving the first of January, viz. the above mentioned steer* will weigh between fifteen and sixteen hundred slaughtered, as he weighed two thousand alive in September last, and a cow that will probably weigh between eleven and twelve hundred slaughtered, and a three years old heifer nearly nine hundred, *all* of my own raising and fatting. Many of my friends are endeavouring to persuade me to keep the above steer another season for the Brighton Fair, at present I am undetermined. Before I close I would make a few more remarks on corn and cobs. My aged father who still survives, upwards of eighty years of age, who has formerly raised considerable excellent beef from this farm for the Boston market, since he has witnessed the saving of labour, and seen the effects in fatting cattle, and hogs, has often been heard to say if he had

* We conjecture Mr. Rice means the one which obtained the premium at Worcester.

known this thing when he first commenced business in the world, it would have saved him two or three hundred dollars. For my hogs, I mix oats with it, and it answers a good purpose, it gets them along as fast as any provender I ever made use of, I see no material difference. It makes excellent fodder for a horse and is coming very much in fashion for that use. My faith is so great in the thing I would carry my corn six miles to mill to be ground in this manner even if I could get it ground in the common way within half a mile. I submit these remarks for your disposal and consideration.

ASA RICE, Jr.

Shrewsbury, Nov. 12, 1822.

ON RAISING CORN.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

THERE is a high barren hill on my farm, which has been improved for a pasture ever since the first settlement of the town, it had the appearance of making very good ploughing land, but in consequence of the steepness of the hill on every side, which rendered transportation so difficult, and supposing it bad husbandry to try to raise Indian corn without plenty of manure, one generation after another has passed off and suffered the hill to remain dormant. The present occupant being of the fourth generation of the same family in possession of the farm, hit upon an experiment of raising Indian corn with the aid of Plaster of Paris alone. I went on to the hill with my team in the month of September 1820, and ploughed as I supposed about two acres, and

found it an excellent soil, a deep and good coloured loam, free from stone, left it in that situation until the following spring, at which time I first gave it a harrowing, then cross ploughed and harrowed it again which left it in a fine state for planting. My neighbours began enquiring what I was about to do on the hill; I told them my plan; they said it was impossible, such a thing could not be done to any advantage, that I should lose all my labour but I was resolved to persevere in the experiment. I accordingly furrowed it in my usual way about a common pace asunder, dropped the seed, threw a common table spoonful of plaster into the hill, then covered it with earth which was all the manuring it had, except a slight quantity of ashes at the first time of hoeing. It pushed forward with greater rapidity through the season than my other corn where I manured very high, and at harvest time it appeared superior to any corn I had. Several of my neighbours kindly offered to assist me in harvesting and measuring the corn to know the result, we found by exact measurement there were ninety and a half bushels of shelled corn of an excellent quality, and by actual survey, we found there was one acre three quarters and twenty seven rods of land, making almost forty-eight bushels to the acre; it was supposed to be the greatest quantity to the acre raised in the town, the last season, (it will be recollected the season for corn was not so good as the present.) The quantity of plaster it took, was about four hundred weight. The whole labour bestowed on the field exclusive of the harvesting was performed by one man and two small boys in fourteen days and one half. I presented this statement to the Worcester Agricultural Society, at their December meeting, and they awarded me a handsome premium and highly complemented me for my novel experiment. It was generally

NOTE. We have taken the needful liberty of curtailing Mr. Rice's letter. We hope without offence, and we are sure we have not lessened its perspicuity or usefulness. Editor.

supposed that the strength of the land was exhausted that it would not produce any thing farther unless it be very highly manured, which caused me to extend the experiment. I accordingly planted the same piece the present season, in the same manner, except adding a little more plaster, say, a quarter more to the hill. The same gentlemen who assisted me the last season in measuring the corn assisted me again, and we found by a careful and exact measurement there were one hundred and two bushels lacking two quarts, making over fifty-three bushels per acre. There are perhaps eight or ten acres on the top of the hill adjoining that I ploughed, which is so level, that it is very convenient working on it, which induces me the next season to sow this piece with oats and grass seed, with a good coat of plaster, and plough up another piece and manage it in the same way.

I now present the doings of both seasons to the Massachusetts Agricultural Society for their consideration.

ASA RICE, Jr.
HENRY HOWE.

Marblehead, July 19, 1822.

JACOB WILKINS' CLAIM FOR BARLEY.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

The year past the land was improved in raising vegetables of various sorts, manured and tilled in the usual way without any respect to an agricultural report.

April 12th, 1822, the land was ploughed about eight inches deep with a ploughman, driver, and four oxen; harrowed and carried off the rocks the same day.

The soil loamy, inclining to gravel, descending to the north east from a ledgy knoll, which included part of the premises.

April 13th, sowed three bushels of six rowed barley on what I considered the largest half of the piece, at the same time sowed one and a half bushels two rowed barley on the remainder.

Sowed grass-seed over the whole and ploughed and harrowed the same in.

There was no manure applied this year. When the six rowed barley was about six inches high, it was all mowed down, and left on the ground; this was for experiment.

July 18th, mowed the six rowed barley and put in the barn, 24th, mowed and put in the two rowed barley.

The six rowed barley appeared to be about twelve days forward of the two rowed in ripening, both were stacked separately in the barn and each quality thrashed and kept separate.

August 30th, the barley being cleansed was measured by myself, Henry Butman, and Jeremiah Hathaway. The six rowed measured thirty-four bushels, and the two rowed measured twenty-three bushels. The land was measured and contained one acre nineteen rods and one hundred and fifty-three feet.

The straw we consider in value to the labour.

JACOB WILKINS,
HENRY BUTMAN.

INDIAN CORN.

Newbury, Nov. 5, 1822.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

THE subscribers in support of a claim entered for the Society's premium for raising the greatest crop of Indian corn, offer the following statement of the situation, cultivation, and production of their lot. It is situated on the westerly side of Merrimack ridge, so called in said town; the soil is a dark clay loam. In 1821 was planted with beets and carrots, manured with six cord of manure, made by a brewer in Newburyport, and produced about 400 bushels to the acre. The first of May 1822, it was ploughed; the 9th, it was cross-ploughed; the 10th, it was planted in the following manner:—It was holed three and a half feet each way, and five cord of compost manure put in the holes. Four grains of corn were put in the holes on the manure, and covered with a hoe. The corn is the yellow eight rowed kind, and weighed, when harvested, 58 pounds to the bushel. The green or unripe corn was not measured. June 7th, it was hoed the first time; the 12th we thinned them to three plants in each hill, and filled up the vacant hills by transplanting; 14th, hoed it over the second time; the 25th, hoed it over the third time; July 15th, destroyed the few weeds that remained; the stalks were topped about the middle of September, harvested the 7th and 8th of October, and there were two hundred and thirty-two bushels of ears, and a fraction over; the fraction was shelled, which made nine quarts. By shelling four bushels of ears, the estimate was one hundred and sixteen bushels and nine quarts of sound shelled corn.

Respectfully yours, TRISTRAM LITTLE,
HENRY LITTLE.

Essex, ss. Nov. 18th, 1822. Then Tristram Little and Henry Little made solemn oath to the truth of the above representation, before me,

EBEN. MARCH, *Justice of the Peace.*

The expense of cultivating the above crop of corn, including the rent of the land and the manure, and the labour at four shillings per day, is $38,75. The stover from the same we value equal to one ton and a half of hay.

This may certify that I have measured the above field of corn to the best of my skill and judgment, and there is one acre and no more, including the land, without the corn which the roots of the plants occupy, twenty-one inches without the hills. SILAS MOODY.

This may certify that we have assisted in gathering and measuring the above field of corn, and there was one hundred and sixteen bushels and nine quarts of sound corn.

PAUL JAQUES,
JOSEPH KNIGHT.

Essex, ss. Nov. 18, 1822. Then the above named Silas Moody, Paul Jaques, and Joseph Knight, made solemn oath to the truth of the above certificates, by them severally signed before me, EBEN. MARCH, *Justice of the Peace.*

P. S. We take the liberty to omit making a particular statement of the onion crop which was entered, as Mr. Knight's mode of culture is similar to ours. His statement you will have.

P. S. We take the liberty to state to you an experiment of planting about a quarter of an acre of the Mohaw, or Council Bluff corn so called. We think it a valuable plant for soiling or fatting cattle, as it is very luxuriant in its growth and inclines very much to suckers, and the kernel quite soft; but to cultivate for the grain we think it will not be valuable for in this season, which is two or three weeks earlier or longer than usual, this corn did not ripen; and another great objection is its weight; the ripest weighed only 45 pounds to the bushel.

Shrewsbury, November 20th, 1822.

[To the Trustees of the Massachusetts Agricultural Society.]

THE following is a correct statement of a small piece of Indian Corn raised by me, the subscriber, the last season, on one acre and twenty-five rods of land, it being where I raised a crop of spring rye in 1821. I turned in the stubble the first week in May last, in about ten days after I cross ploughed it, furrowed it out and planted it as quick as I conveniently could. I then dressed it three times in the common way, I put twenty cart bucks of manure, ten made the last winter, green from the barn, spread and ploughed in, the other ten made the season before and put in the hill, when the tassel was beginning to curl I cut the stalk from the corn, I then let it stand in the field until about three weeks since, I collected it together, and husked it out, and measured it as accurately as I possibly could, in a two bushel basket, and found it to produce seventy-four baskets, and nearly a half; we have since shelled one basket and found it to produce one bushel and five quarts to the basket, the odd measure producing seventeen quarts; making a total of eighty-six bushels and three quarts; all which is submitted for the consideration of the Massachusetts Agricultural Society, by their friend and well wisher,

NATHAN HOWE.

N. B. The above described land had no manure in 1821, and had been used for mowing eight or nine years.

N. B. I took no more pains to raise the above stated crop of corn than I commonly do one year with another, nor is the crop much different from what I commonly raise when the season is good and the land in order, nor had I ever once thought of reporting the same to any society whatever, until I came to collect it together, which was then concluded on by the advice of my neighbours.

Worcester, ss. *Nov. 26th*, 1822.

Then the above named Nathan Howe made solemn oath to the truth of the above statement.

Amasa Howe also made solemn oath that he assisted in measuring the above stated crop of corn and that the above statement is correct. Before me,

JONAH HOWE, *Justice of the Peace.*

Nov. 25th, 1822.

This certifies that the field from which Nathan Howe, Esq. raised eighty-six bushels and three quarts of corn, this season, contains one acre and twenty-five rods from actual survey. J. H. MILES, *Surveyor.*

Bellingham, Sept. 28th, 1822.

ON INDIAN CORN.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

THE following is a statement of the production of one acre and one quarter and twenty-three rods of old plain land, the soil of which is a sandy loam, cultivated with Indian corn, by the subscriber in Bellingham; said land had been laid down and mowed six years.

In the month of August 1820, about one third of the land was ploughed: in the Spring of 1821, the remainder was ploughed and planted with Indian corn in hills, with one common shovel full of manure in a hill, which produced a handsome crop of corn. In the Spring of 1822, ploughed the ground twice with a small plough; furrowed the ground shallow at the distance of between six and seven feet one way, filling (or nearly so) those furrows with manure; cov-

ering up said manure by two furrows one on each side; planting the seed corn in those two latter furrows at the distance of from eight to ten inches per grain asunder: ploughing and hoeing said corn, twice all one way, and hoeing part of it the third time.

The 16th of September, the corn was harvested and measured, and there were one hundred and fifty-five baskets full of ears; and one basket full of ears was shelled and made thirty-one quarts, making in the whole one hundred and fifty bushels and five quarts; and there were four waggon loads of pumpkins on said ground. The seed was the eight rowed white corn. JOHN C. SCAMMELL.

SPRING WHEAT.

The following is an Appendix to the Report of Thomas L. Winthrop, Esq.

William Jackson, Esq. of Plymouth, raised thirty-four bushels and twelve quarts of Spring Wheat, on one acre, and forty-two rods, being at the rate of twenty-seven bushels and seven quarts to the acre; and the premium would have been awarded to him, had not the committee been under some mistake as to the quantity of land cultivated; the evidence required being satisfactory to the committee, they recommend that the premium of thirty dollars be paid to said Jackson.

January 11th, 1823.

Plymouth, 7th Oct. 1822.

[To the Committee on Agricultural Experiments and Products.]

GENTLEMEN,

THE following is the statement of the cultivation and produce of one acre and forty-two rods of land, cultivated by me, in the years 1820, 1821, and 1822. Previous to the year 1820, this land had been improved for mowing and pas-

ture for more than thirty years. In the summer of 1819, (a season of great drought,) the sward was entirely destroyed by worms, which made it necessary that it should be cultivated, or it would be unproductive for some years. In the Spring of 1820, I had it ploughed, and planted with Indian Corn; manured in the holes with twelve waggon loads of stable manure; the crop was sixty-three bushels. About the middle of August, hoed in winter rye; the crop in 1821, was thirty bushels.

Immediately after reaping the rye, I had the weeds and stubble ploughed in. The Spring of 1822, I put on twenty waggon loads of stable manure, had it spread and ploughed in the 18th of March; the 21st harrowed with an iron tooth harrow, sowed two bushels and one peck of the Gilman wheat; 20 pounds of clover seed, and a half bushel of red top seed; harrowed again with the same harrow, and then with a bush harrow; the wheat being first soaked 48 hours in fair water, and well limed, by mixing with three pecks of slacked lime. The 19th July finished reaping and it was thrashed the next week. The 2d of August it was winnowed and measured up thirty-four bushels and twelve quarts.

WM. JACKSON.

ON HEIFERS, SWINE, &c.

[To the Trustees of the Massachusetts Agricultural Society.]

GENTLEMEN,

I HAVE presented for premium five spayed Sows perfectly healed and in good condition, and conformably to the rule prescribed to entitle an applicant to the premium, I beg leave to state the process in manner following, viz.:—The animal is laid on its side and held fast by one person unless over forty pounds weight; exceeding that weight two persons may be necessary. An incision is then made from three

to six inches long, proportioned to the size of the subject, through the integuments and abdominal muscles to the peritoneum,* in a transverse direction from the spine toward the linea alba,† at the distance of about one inch from the last short rib of one side, (the opening nearly corresponding with the direction of the rib,) the peritoneum is then to be cautiously opened to prevent wounding the intestines. The intestines are next to be turned out with the hand, which exposes the ovaria, (which are two oval bodies on each side of the uterus, about the size of a walnut in a pig of sixty or seventy pounds weight) consisting of a number of small vesicles called ova; these are removed by the knife, the intestines replaced, and the external wound sewed up, the pig may then be returned to the stye and fed sparingly for a few days. In addition to the pigs now exhibited, this operation has been performed on twenty sows of various sizes at Byfield, in the county of Essex, and at Brighton by direction of Mr. Parsons, who authorizes me to state to you, gentlemen, that he is perfectly satisfied with my ability to perform this operation successfully.

With great respect your obedient servant,

JOHN BAKER.

* *Peritoneum*, commonly called film of the belly.

† *Linea alba*, is a straight line drawn from the point of the breast bone, directly between the legs.

ON GRASSES.

[To the Recording Secretary.]

DEAR SIR,

At your suggestion, that there might be some utility in publishing the result of some experiments made the past season upon the evaporation of certain Grasses, &c. in the process of drying or making for safe and useful preservation;

I herein inclose the same to you for such disposition as you may think proper.

The great object of research seems to be, what is that admirable process of nature, (as yet too little understood,) by which vegetable life is sustained and promoted? And how can this be traced or pursued so as to allow to human skill and ingenuity the nearest approach to the wonderful perfection of the great design? That this may be usefully done—that it is indeed partly accomplished, and that we are in full progression to this effect, cannot be doubted. The discoveries and improvements in those sciences, particularly in Europe, which have a reference to the theory of agriculture, have of late shed such a light upon the subject, and these have been so followed up by practice and confirmed by experience, that the result is indeed most auspicious, and marks the present age as an era of improvement.

But the process of nature is indeed subtle and mysterious, and can only be unfolded to the most earnest and diligent inquirer.

An accurate knowledge of the elements which compose vegetable life, and the different degrees in which they prevail in its formation, cannot be useless, in looking back for its origin and first principles. The tendency of most modern discoveries in relation to vegetation has been to shew the great prevalence of water in its composition. This has not only been made to appear by the analysis of plants, but it has to the astonishment of those who prosecuted these researches, appeared, that an acre of ground gave, according to its humidity, from 2 to 4000 gallons of water to the atmosphere in a day by evaporation only. The operation of this element has appeared so extensive, that it has led to the most delicate experiments, and induced some even to suppose it the sole source of vegetation.

A curious instance has been frequently published, of

a willow inserted in a leaden vessel with a given quantity of earth, and supplied constantly with water; the willow thrived and acquired great growth and weight in a few years;—whilst on a subsequent examination of the soil, it appeared no sensible diminution had taken place.

It is observed by an ingenious writer,* to whom agricultural science is much indebted, "That although the mode in which manures operate on soils is not so obvious to the senses as to be fully understood, there are three ways in which water promotes their improvement. It preserves a favourable degree of temperature; feeds by conveying nourishing substances; and so as a pure element, it is beneficial. To prove that water enters largely into the composition of vegetables, and is thus advantageous, the same writer observes: "That plants cut green, and afterwards dried, lose by exsiccation 66 to 70 parts out of 100."

The loss of weight by drying will be found in this country to vary very essentially from what takes place in Scotland, especially as it respects different plants. But our hay is of necessity made lighter by the heat of our summer, as well as for the purpose of its being stowed in large bodies and tight barns.

It should be premised, that the time of cutting the several grasses, &c. in the following statement was the same as is usually practised by husbandmen in our State.

Of 100 lbs. of vegetables cured in 1822, the product was as follows, viz.

100 lbs.	of Green white clover,	gave of hay	17½ lbs.
100 „	of Red do.	gave	27½ „
100 „	of Herds' Grass,	gave	40 „
100 „	of Fresh Meadow,	gave	33 „
100 „	of Salt Grass,	gave	39 „
100 „	of Mixed, 2d crop on English Rowan,	gave	18¾ „
100 „	of Corn Stalks,	gave	25 „
100 „	of do. cut in milk with the ear,		25

* *Sir John Sinclair.*

It is to be observed, that the weight will vary from ripeness, and many other causes, such as wetness of season, shade, thickness of growth, &c.

I am, Sir, with much respect, yours,

JOHN WELLES.

Dorchester, Oct. 1822.

NOTICE.

We think it our duty to acknowledge the receipt of a very interesting article from Dr. T. W. Harris of Dorchester upon the natural history of an insect, which has for many years made great havock in our salt marshes. We will not anticipate the public opinion by expressing our own opinion in its favour—we can only say, that we regret that the diffidence of the writer induced him to withhold it, till the last sheet of the present number had been put to press. In behalf of our colleagues, we tender to him the thanks of the Trustees, and we regret that we shall be obliged to delay the publication of it, till our next number. The description is very clear and satisfactory; and the drawings are so beautiful and so exquisitely finished, that we should have supposed, if they had not been announced as the work of another hand, that they proceeded from the pencil of the lamented Peck.

J. LOWELL, *Cor. Sec. of the M. S. for Promoting Agriculture.*

January 24, 1823.

N. B. We anticipate the pleasure of announcing to the public in our next number, the publication of the Lectures of Professor Peck. We trust that the respect due to his memory, and a wish to promote the reputation of our country, and to encourage the efforts of our scholars and men of science, will induce all who can afford it to patronize this work.

Messrs. Wells & Lil

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THIS work is too well known and too highly appreciated, to render any exposition of its merits necessary in order to secure to it the patronage of the American Public. It is adapted to our own Soil and Climate, and on this, as well as many other accounts, is preferable to imported systems of Husbandry, filled with directions, many of which are applicable exclusively to Great Britain, or some other foreign country. It therefore can only be requisite to assure the public that the *Additional Matter* is selected with care, and particular caution not to mislead by recommending agricultural processes, on a large scale, which have not been subjected to the test of frequent and successful experiment. The author of the Additions has availed himself of the published proceedings of the Massachusetts Agricultural Society, and other similar institutions; and such of their practical observations, &c. as may be found too voluminous for insertion at length, and cannot be abridged without injury to the sense, will be adverted to by way of reference. And it is intended to make the proposed work useful, not only for its own contents, but on account of its proving an index and synopsis of the best modern productions on Agriculture.

Extracts from the last number of the Massachusetts Agricultural Repository and Journal. June, 1822.

IN our last number, we mentioned, that Messrs. WELLS & LILLY had caused this valuable, and as we think, standard work to be revised* at their own expense, and had put it to press. A wish to render it as perfect as they could, to incorporate in it most of the improvements which have taken place in agriculture since the publication of the second edition, and to expunge from it all superfluous matter, or opinions which are now exploded, has delayed the work to this time.

It will probably appear in the course of a few weeks. We have no other interest in introducing this subject again to the notice of our readers and subscribers, than the wish to diffuse correct agricultural knowledge. Dr. Deane's work was certainly as good a compendium for its size, as could be found in Europe at the time it was published. It had the special merit, for *us*, of adapting European modes of culture to *our* soil and climate. Even in its improved state, it is not pretended that the work supersedes the necessity, with intelligent cultivators, of an extensive agricultural library, but it is calculated, and well calculated, to aid the experience, and enlighten and direct the practice of all descriptions of farmers. It has been necessary so far to enlarge it, in consequence of the great modern improvements in agriculture, that it may prove too expensive for *small* farmers, but we think *all* farmers in *easy* circumstances will find it a very cheap book. Many things will not be new to them, but even these they will find enforced by new reasons and arguments. Though written principally with a view to the New-England States, there is no part of the United States in which it will not be found of great value, and perhaps it may not be and ought not to be its smallest recommendation to the farmers of the United States, that excepting the Rev. Jared Elliot's small tract, it was the earliest and by far the most respectable agricultural work ever published in the United States.

* A great part of the revision and corrections were made by Thomas G. Fessenden, Esq.